AUTHENTIC MEMBERSHIP:
THE EXPERIENCES OF TWO STUDENTS WITH HEARING LOSS IN INSTRUMENTAL MUSIC

BY

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DISSERTATION

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ABSTRACT

The purpose of this study was to explore the experiences of two students with hearing loss participating in instrumental music. Four orienting questions guided the inquiry: (a) What factors contribute to these students' motivation to continue participating in instrumental music?; (b) How is hearing loss affecting each student's music participation and what strategies are accommodating for their hearing loss?; (c) How are students with hearing loss experiencing inclusion in the secondary instrumental classroom?; and (d) What can school music teachers learn from the experiences of these students?

Two participants were identified through email solicitation of a large instrumental music teacher organization and snowball sampling with audiologists in the medical community. Data was gleaned in the two cases through analysis of documents, interviews with the two principal informants, their parents and music teachers, and observations of the two students with hearing loss in large ensemble settings, as well as, private lessons or sectionals.

Analysis and interpretation of the data revealed (a) multiple factors affected motivation for continued participation, many similar to typically hearing students; (b) intonation is the most challenging aspect of music performance and that is being accommodated for in a number of ways, primarily through peer modeling and attention to visual and vibrotactile input; and (c) the two students have gone beyond simple inclusion to being authentic members of their school instrumental ensemble.

The study concludes with implications for music teachers, parents, and researchers of students with hearing loss.

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Yeshua, your kingdom come through my life and this work.

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CHAPTER ONE: INTRODUCTION

A Personal Connection

July 4th, 2007, my son, Cole Bryan Burdett, was born a beautiful baby. He had a pleasant personality, amiable disposition, and joyful countenance. His older brother, and we, his parents, adored him. Our family of four was all I had hoped it would be.

Cole and I shared a nighttime ritual to help bring the day to a close. I would cradle him in my arms and sing along with a CD or just talk and pray as I did with his older brother. It was a special time to connect and bond as father and son. Unlike his older brother, though, he had a persistent curiosity about my mouth. He would poke and prod my teeth and tongue as our ritual commenced, even trying to get his entire hand in there! I began to question his insistent interest…why was my mouth so novel? Why, after all these months of the same ritual, was he still inquisitive?

After months of worry and denial, Cole's profound deafness was confirmed at 13 months of age. His curiosity was explained. All of those silent moving parts on daddy's face were novel because there was no sound information to overcome his visual interest. Although many emotions, fears, and doubts are associated with the news that your child is deaf, one of the most distressing was my understanding that Cole would not be able to share in our family's strong tradition of music making.

Shortly after Cole's diagnosis, my wife and I were introduced to cochlear implant (CI) technology. Although not a cure for deafness, it could provide what Cole would perceive as aural information. This would enable him to interact with sound in a way that speech acquisition and music enjoyment might be attainable. Cole was implanted with an Advanced Bionics cochlear implant at 15 months of age and began hearing with his device on January 2,

2009. Although he does not hear what the typically-hearing individual hears, Cole is communicating with spoken language and is interacting with music through the aural input provided by his cochlear implant.

Background

Hearing loss and music have somewhat of a romanticized partnership. Perhaps attributable to the lore of Beethoven's hearing loss, or in the modern day, profoundly deaf percussionist Evelyn Glennie's success in the classical music world, there is a fascination with musicians who do not hear at typical levels. Yet little is known about students with hearing loss, and their experiences in music.

A foundational position among music education practitioners and researchers is the notion that all children are born with the capability to create and understand music (Gardner, 1983; Gordon, 2003; MENC, 1995; Valerio, Reynolds, Bolton, Taggart, & Gordon, 1998). This notion takes on unique meaning when the very sense that is presumably necessary to create and understand music is hindered due to hearing loss. Does the mantra for 'music for all' extend to this population of students?

Hearing Loss

It is generally accepted that the incidence of educationally significant hearing loss in developed countries may be as high as 1.65 per every 1000 births (Fortnum, Summerfield, Marshall, Davis, & Bamford, 2001). Approximately five percent of all school age children have hearing loss (Heward & Orlansky, 1988). The number of children in the United States aged six to nineteen with mild to severe bilateral hearing loss is between 903,000 and 957,000. An additional 33,000 to 43,000 have profound bilateral hearing loss according to The National Institute on Deafness and other Communicative Disorders (2005). That same

age group is estimated to contain between 2.8 million and 3 million with mild to severe unilateral hearing loss. Within the population of children under the age of six, it is estimated that at least 30,000 children have mild to severe hearing loss. The majority of these children have some residual hearing that can be amplified with the use of a hearing aid, while those with profound hearing loss, can, in most cases, utilize a cochlear implant to access meaningful aural input (Flexer 1999; Martin and Summers 1999). For these children and their families, hearing loss is a complex issue, both biologically and culturally.

Hearing impairment is not necessarily a bilateral phenomenon. In other words, both ears may not be affected by hearing loss the same way. For instance, one may have only mild hearing loss in one ear while the other ear may have a profound hearing loss—or none at all. In addition, hearing impairment may not be equally present at all frequency levels. Often an individual may have only mild hearing loss in lower tones while higher frequencies may have profound impairment. In any circumstance, the utilization of residual acoustic hearing by use of a hearing aid is preferable to cochlear implants, as it more closely resembles that of natural hearing.

Hearing Aids

Hearing aids have undergone dramatic changes. From the pre-twentieth century acoustic era, best known for its large cone apparatus, to the digital age beginning in the late 1970s, the pursuit of aiding individuals with poor hearing has been a significant undertaking. Modern hearing aids are best categorized by where they are worn -- on the body, behind the ear, or in the ear. The modern digital hearing aid is an apparatus that amplifies sound for the individual who has some residual hearing; typically due to the malfunctioning of an element in the outer ear. The transducer converts sound waves into

electricity, increasing the strength of the signal and then, through a miniature speaker, sends the amplified sound into the ear canal (Paul & Whitelaw, 2011).

The bone conduction hearing aid is used predominantly when the ear canal is closed or absent. Unlike the typical hearing aid that sends amplified sound through the ear canal, the bone conduction hearing aid utilizes a titanium prosthesis surgically embedded in the skull to transmit vibrations through direct conduction of the bone to the inner ear.

At the core, hearing aids simply make sounds louder. For children with mild to severe hearing loss, hearing aids are the preferred intervention (Pittman & Schlauch, 2011). For children with this level of hearing loss, sounds and music can be accessed with their hearing aids (Paul & Whitelaw, 2011). Hearing loss that is due to nerve cell damage cannot be overcome with hearing aids. However, the cochlear implant is capable of assisting those individuals with sensorineural hearing loss.

Cochlear Implants

Cochlear implants give profoundly deaf individuals the opportunity to receive auditory signals by bypassing the inner ear and transmitting an electrical signal straight to the cochlea which is interpreted by the brain as sound. This offers hope to individuals with sensorineural deafness whose hearing impairment is a result of inner ear malfunction. Whereas a hearing aid or bone conduction hearing aid cannot overcome the absence of (or damaged) nerve cells associated with sensorineural hearing loss, the electrical stimulation from the electrode inserted into the cochlea bypasses the nerve hairs stimulating the nerve directly (Paul & Whitelaw, 2011).

Components of a cochlear implant include an outer portion consisting of a microphone, sound processor, headpiece, and an inner portion that receives the

transmitted signal and sends it to the cochlea by way of an electrode array (Paul & Whitelaw, 2011).

Initially researched in the 1950s, the first successful CI surgery took place in 1957. This achievement was successful due to the presence of an audible sensation from an electrical stimulation. Times have changed, and the anticipated successful outcome of cochlear implantation as it relates to speech perception is quite high. Research has documented impressive data of CI users' abilities to decode speech in relatively quiet environments (Staller, Arndt, & Brimacombe, 2000). However, individual results vary and are dependent on a multitude of variables including: processor-coding technology, plasticity of language acquisition based on implantation age, and surgical outcomes such as electrode placement within the cochlea.

A relatively recent advancement, the FDA permitted commercial availability of cochlear implants in the mid-1980s. Presently 188,000 people worldwide utilize this technology (Marcus, 2009). Children between two and seventeen were approved for implantation in 1990. Approximately 30,000 children worldwide now use the device.

Children, no matter the severity of their hearing loss, have the opportunity to now access sound through hearing technology. It is important to note that no matter the technological assistance utilized, typical hearing is never restored. Many intricate aspects of sound are unable to be naturally characterized by limitations in technology. However, what students can hear may provide them, if they choose, opportunities for music learning and enjoyment. Choosing to access sound, and subsequently music, through hearing aids or cochlear implants is a complicated matter for some.

Deafness: deficit or difference?

Hearing loss is a complex cultural issue due to the polarizing dichotomy that exists regarding deafness. There are those individuals who perceive deafness as a medical issue to be resolved or fixed—a deficit, and an opposing philosophy that views deafness as a culture to be preserved—a difference (Marschark, 1997, Swanson, 1997, Lane & Bahan, 1998). Those who have sought technology-assisted hearing indicate a desire for their child to function as a hearing person in a hearing world (Kluwin & Stewart, 2000). This viewpoint has not always been met with consideration from those in the Deaf culture.

The term 'Deaf' (with an uppercase "D") defines a cultural group whose identity has been formed through common traditions and strengths due to the use of a common visual language; American Sign Language (Smith, Bale, & White, 2005). Tensions have arisen when the values of the hearing world (namely to make the choice to hear given the technological ability to do so) collide with those of Deaf culture. These conflicts are no more prevalent than in the most recent debate that has raged, most recently, around the use of cochlear implants among children. Nancy Bloch, President of the National Association of the Deaf, illuminated the complexity of this intersection when she said, "…implants are seen as the panacea for deafness, which only serves to perpetuate devaluative societal attitudes towards deafness and deaf people" (Cochlear Implants: The Debate, 2010).

Although 30,000 children worldwide have undergone cochlear implantation (Zeng, 2004), and thousands more use hearing aids, the choice is a controversial one within the deaf community. Some members of Deaf culture view the technological assistance as the inappropriate asserting of the hearing community values on the Deaf community as if there

were something wrong with them (Ogden, 1998; Rhoads & Duncan, 2010). To make matters more heightened, the self-worth and identity of those in the Deaf culture are intertwined with their ability or inability to physically hear, and subsequently, communicate using oral and aural means (Marschark, 1997). Some individuals with hearing loss choosing to hear through technological means may be seen by some in the Deaf culture as devaluing those who are not aided. Similarly, the choice of communication style can be complicated.

Communication Options

When a parent must choose a mode of communication for their child due to the child's inability to hear at typical levels, they are presented with choices that fall loosely into one of three categories: (a) spoken language that is accomplished through Auditory-Oral Education or Auditory-Verbal Therapy; (b) visual/manual communication that is learned through ASL or SEE (Signed Exact English); and (c) pairing spoken language and visuals, which is realized through Cued Speech (pairing a series of eight hand cues that are positioned close to the speaker's mouth with spoken language for improved speech reading) and Total Communication (simultaneous spoken language and signed language)(Maxion & Brackett, 1992; Schwartz, 1996).

The next graphic (Figure 1) demonstrates the communication option spectrum with visual-only represented on the left extreme and aural-only to the right.

Figure 1.

Each of these communication options has ramifications for the type of early schooling necessary to achieve competency and further, the independence with which they can communicate with those in the mainstream hearing world (Chute & Nevins, 2002).

Visual/manual communication such as American Sign Language uses hand signs, gestures and facial expression as the communication method, and has its own unique syntax and grammar. Its usage is prevalent in state-sponsored residential schools for the deaf and is a defining marker of Deaf culture (Chute & Nevins, 2002). The educational options available to children who are using visual/manual communication are typically state-sponsored schools for the deaf and self-contained classrooms within public schools.

Pairing visual and spoken language, Total Communication and Cued Speech is the use of both auditory training and gesture. Similar to ASL in the use of gesture, Total Communication is unique in that it utilizes Signing Exact English (SEE). Unlike ASL, SEE strives to achieve word-for-word representation of the English language. Children can learn sign at almost any time in their development (Paul, 2000).

Auditory Oral Education and Auditory Verbal Therapy are approaches to obtain spoken language that, through amplification (hearing aid/cochlear implant), early

intervention, and training, can teach a child to listen and speak (Ling & Ling, 1978). Of particular concern for parents choosing a communication option is timing. Research indicates that the optimal age for a child to learn to listen and speak is at three years and younger (Hayes & Northern, 1996) and studies of children implanted with cochlear implants report the advantages of implantation before two years of age (Dillon, Pisoni, & Carter, 2004; Nicholas & Geers, 2006). Subsequently, those involved with oral methods are typically younger as the language center of their brain has the plasticity available to learn the language skills from auditory means.

Education options available to those utilizing this communication style are private oral schools that teach children as young as two and extend into early elementary grades, a self-contained public school classroom, or an included or mainstreamed school setting for those who have reached a level of proficiency where maximum educational achievement may be realized (Chute & Nevins, 2002). No matter which communication option is utilized, early intervention is paramount to improving language acquisition thereby decreasing the negative impact of hearing loss on a child's entire development (Yoshinago-Itano, 1999).

Music learning was not isolated as a factor noted by parents in choosing a communication mode (Eleweke & Rodda, 2000; Li, Bain & Steinberg, 2003). Are families not concerned with music learning and participation for their child with hearing loss? Is the overwhelming priority of language acquisition at the child's stage of development leaving music participation to only those with typical hearing?

Children with Hearing Loss in the General Education Classroom

The passage of the "Individuals with Disabilities Act" (Public Law 94-142) has fundamentally changed the way in which children with disabilities are taught. The Individuals with Disabilities Act (IDEA) advanced the concept of a "least restrictive environment" for the preferred education setting of this population of students. Through the original 1975 bill and its reauthorization in 1997, the United States Congress created the precedent that students with disabilities be included with the mainstream-learning environment at the highest level possible (Gartner & Lipsky, 1987). What followed was a greater diversity in educational placement for deaf students.

Schooling options for deaf students fall into four categories: (a) separate schools, (b) resource rooms, (c) separate classes, and (d) co-enrollment classes (Spencer & Marschark, 2010). Just over 12% of deaf students attend separate schools (National Center for Education Statistics, 2008). These "schools for the deaf" are typically populated with 150-200 students, utilize sign language as the communication mode, and have residential capabilities (Moores, 1996; Schirmer, 2001).

Resource rooms and separate classes are both held on public school campuses populated primarily by typically hearing students. The distinction between these two placement options is the amount of time students take part in general education courses. Students in resource rooms are in a specialized class with a teacher of the deaf and other students with hearing loss for only part of the day for selected subjects, while students taking part in a separate class spend all or virtually all of their school day with a teacher of the deaf alongside other deaf students (Stinson & Kluwin, 2009). Just over 36% of deaf

students take part in either a resource or separate class (National Center for Education Statistics, 2008).

Over 86% of deaf students took part in general education classes in 2006. While the bulk of responsibility is on the typical classroom teacher, students may also receive supplemental instruction from an itinerant teacher and speech language specialist (Schirmer, 2001). Statistically, a student with hearing loss in a general education setting is typically a white male with no other handicaps, has moderate hearing loss, wears a hearing aid, and has comprehensible speech (Allen & Karchmer, 1990; Allen, 1986; Holt, 1994; Kluwin & Stinson, 1993).

Co-enrollment classes are the least frequent option available for deaf students. These classes are made up of equal or virtually equal numbers of deaf and hearing students that utilize both speech and sign communication modes. "Without the base of a moderately large deaf student population to continue year after year, as well as a dynamic and dedicated administrative structure…these programs seem to flourish and disappear within a year or two" (Stinson & Kluwin, 2009, p. 49).

When students with hearing loss take part in general education classes, 'mainstreaming' or 'inclusion' are terms frequently used to describe the students placement. Often used interchangeably, there are unique placement, pragmatic and philosophical ideas that separate the two (Stinson & Kluwin, 2009). Stinson and Antia (1999) write that inclusion places the deaf student in a general education classroom for all or most of their education while mainstreaming suggests that the deaf student be in a public school attended by typically hearing students, but not necessarily in a general education classroom.

Schooling Choices

For those children who are utilizing technology-assisted hearing, a commitment, either partially or fully, has been made by the family to include the child into the hearing world (Chute & Nevins, 2002). In the life of a child the commitment is most evident in the goal of attending a typical school where children who are deaf or hard of hearing can be connected to the larger society through spoken language. Mainstream schooling is a significant acculturating agent in accomplishing that goal. Of the ten million deaf or hard of hearing school-aged children, only 65,000 are in education settings specifically designed for deaf children (Mahshie, 2006). The vast majority of deaf students attend a school populated by primarily hearing students. This educational environment is not without difficulties for the child with hearing loss academically or socially.

Hearing loss affects many aspects of development and places deaf students at high risk for language, social and academic difficulties (Spencer & Marschark, 2010). Research has documented academic limitations in both math (Kelly & Mousley, 2001; Qi & Mitchell, 2007; Traxler, 2000) and English—the most notorious interpretation of data finding that median scores of 15 to 18 year old deaf students scored equivalent to third and fourth grade hearing students as measured by the Stanford Achievement Test, 9th edition (Traxler, 2000).

Communication limitations also affect students abilities to acquire information and skills in other academic arenas. Studies of incoming college students indicated that deaf students arrive to the mainstream college classroom with less content knowledge in the natural and social sciences as well as mathematics (Marschark, Sapere, Convertno, & Seewagen, 2005; Marshcark, Sapere, Convertino, Seewagen & Maltzen, 2004).

Individuals with hearing loss speak of isolation and loneliness as byproducts of their hearing loss. As one woman said when reflecting on the onset of her hearing loss during her school age years, "sure, there were people around me, and before I became deaf I had friends at school. After I became deaf, a wall was slowly, but surely constructed between us" (Ferris, 1994, p. 191). Darrow (1985) confirms this sentiment stating that communication and language barriers often cause exclusion for children with hearing loss. Helen Keller, perhaps the most famous historical figure with hearing loss said that, "hearing is the soul of knowledge and information of a high order. To be cut-off from hearing is to be isolated indeed" (Christie, 1987, p. 125).

In my own conversations with deaf and hard of hearing students learning in a general education setting, they often make reference to "straddling the fence" of identity, neither part of the hearing world nor part of the Deaf world. Marschark (1997) posits that when a family accepts the nature of a child's hearing loss as a deficit instead of a difference, the child is apt to sense their 'differentness' when mainstreamed. Mahshie et. al, (2006) corroborates indicating the " mainstream educational setting… does not readily provide the types of experiences and interactions necessary to facilitate… healthy identity development" (Mahshie, et. al, 2006, p. 91). Fortunately, it seems that indictment is not wholly accurate as Keilmann, Limberger, & Mann (2007) found that the self-reported psychological and physical well-being of mainstreamed deaf students were higher than their peers enrolled at a specialized school for the deaf.

Group music participation within an inclusive or mainstreamed environment has the capacity to provide positive opportunities for social connection for students with hearing loss (Darrow, 1985; Walcyk, 1993). Through singing and playing, laboring towards

a common goal and developing a sense of responsibility to their role in the group, music participation is capable of being a powerful socialization agent (Birkenshaw, 1965; Graham & Beer, 1982; McDermott, 2004; Walczyk, 1993). This type of community building activity has been historically absent from students with hearing loss in the mainstream setting according to Olivia (2004). One theme that emerged from the qualitative analysis of 60 essays by deaf or hard of hearing adults aged 24-60 reflecting on their mainstream schooling, was the need for successful extracurricular activities that would act as vehicles for friendship with hearing peers. Although not necessarily 'extracurricular,' instrumental music at the secondary level contains a social network component that has the capacity to facilitate positive and meaningful relationships for students with hearing loss.

Hearing Loss and Music Education

1848 was the first account of music education for deaf students written in the "American Annals for the Deaf and Dumb." William Wolcott Turner and David Ely Bartlett, using the case study of a deaf pianist, encouraged music education for the hearing impaired. Lowell Mason was also known to advocate for music opportunities and the hearing impaired (Darrow & Heller, 1985), however there is very little data specific to the incorporation of students with hearing loss in instrumental music. Most peer reviewed documents are in the form of literature reviews, best practice articles (Hash, 2003; Walczyk, 1993) or surveys of mainstreaming practices currently in place (Darrow & Gfeller, 1991; Frisque, Niebur & Humphreys, 1994; Solomon, 1980). Of particular note though, is Sheldon's (1997) historical account of a brass band at the Illinois School for the Deaf during the early part of the 20th century.

Championed by politician and philanthropist Orville Browing, the Asylum for the Education of the Deaf and Blind in Illinois was founded in 1839 and began operation in 1846 by act of the Illinois State Congress. The curriculum at the Illinois school included classes intended to improve speech and communication through rhythm and vibration. Students were recognizing tunes from the vibration of pianos and engaging with piano accompaniment using drums, wood blocks, xylophones, tambourines and other such instruments. After visiting students who were playing instruments in schools for the deaf in New York, Connecticut and Pennsylvania, Superintendent Oscar Smith purposed to begin a band at the Illinois school. In 1921 Superintendent Smith hired Fred Fancher, an alumnus of the Illinois program and teacher at the Tennessee School for the Deaf, to lead the ensemble.

Enrollment in the group was based upon student responsiveness to a beat given by Mr. Fancher on a large bass drum, rather than by the level of residual hearing in each boy. The group became proficient enough to take tours performing in many locations including conferences in St. Paul and Chicago, the Illinois State Fair, and the White House. Performances were so successful that some even doubted the deafness of their players. Fancher's departure from the school in 1942 signaled the end of 20 years of the Illinois School for the Deaf Brass Band. The phenomenon of the deaf band was increased by the fact that it was led by a deaf instructor, made up of deaf musicians, and located at a deaf school (Sheldon, 1997).

Since that era, dramatic advances in technology have provided students with hearing loss greater access to sound. Although research indicates music teachers are

apprehensive and find it difficult to teach music to students with hearing loss—it is still occurring (Gfeller, et al., 1990; Graham & Beer, 1980).

As a music education researcher, and father to a son with hearing loss, I began asking questions about students who are part of this low incidence population. What are these students thoughts on their own learning? How are they overcoming the challenges that hearing loss presents to participation in instrumental music? How is their hearing loss affecting their musical experience? Where did their interest in music begin? Why did they choose music making through an instrumental medium? How do they characterize their sense of connectedness to the other musicians in their instrumental ensemble?

Statement of the Problem

The essential question of this inquiry was: What are the experiences of students with hearing loss in instrumental music education? This was accomplished by addressing four orienting questions:

1. What factors contribute to students' with hearing loss motivation to continue participating in instrumental music?
2. How is hearing loss affecting music participation in a secondary instrumental music context?
3. How are students with hearing loss experiencing inclusion in the secondary instrumental classroom?
4. What can school music teachers learn from the experiences of these students?

Answering these questions will further the body of knowledge specific to music education that concerns students with hearing loss. It is my hope that by documenting,

describing, and interpreting these students' experiences, teachers, parents and other students with hearing loss will be empowered to make music learning more meaningful for students with hearing loss.

Need for the Study

Instrumental music educators need information on teaching students with disabilities. Lapka (2005) and Moss's (2009) qualitative investigations of students with disability in instrumental music education has propelled the discussion forward. However, there is a lack of information surrounding the experiences of students within this specific group--those with hearing loss participating in instrumental music. The lack of information may be one of the reasons that there are so few students with hearing loss participating in instrumental music. Instrumental music teachers and students with hearing loss need to be empowered to bridge this chasm of involvement with one another.

McKee (2011), in a study following the IEP process of a high school student, described one incident when the parents of a student with disabilities expressed frustration and discouragement with their child's band director and his lack of support for their child's inclusion. The study reported that in one exchange the instrumental music teacher was even "pounding on the wall with his fists" in disagreement with the parents desires (p. 168). This frustration may be one indicator of a lack of information regarding the experiences of students with hearing loss in instrumental music.

Students with hearing loss are among the most intimidating subset of the population of students with unique needs. At the implementation of IDEA, the deaf or hard of hearing population received the least amount of music education in comparison to other groups of atypical learners (Graham & Beer, 1980). Gfeller et. al., (1990), in a study of

music educators in two Midwestern states, revealed that next to emotional or behavioral disorders, music educators reported the most difficulty working with students with hearing loss.

The need for this study stems from our need as music educators to learn more about the musical experiences of students with disabilities, especially those with hearing loss for the purposes of meaningful learning and equal access to all educational experiences (Gfeller & Lansing, 1992). While research into music and hearing loss has been present for approximately 30 years, there have been minimal investigations into instrumental music. After an extensive literature review I have concluded there are none documenting the students experiences in instrumental music. Further, the majority of music education for students with unique needs has historically occurred at the elementary level, while music making at the secondary level has been virtually excluded (Graham & Beer, 1980). Jellison & Taylor's (2007) review of music education research on disability concluded *secondary* choral and instrumental teachers made up one percent of total participants. There is a significant dearth of data at the secondary school level. Subsequently, a focus on students involved at the secondary level is prudent.

Advances in hearing technology in the form of digital hearing aids and cochlear implants, along with increasingly earlier interventions due to newborn hearing screenings increase the possibility that music interaction on the part of children with hearing loss is, and can become, a reality in new and meaningful ways for future generations (McDermott, 2004). Instrumental music educators need deeper insight into the population of students with hearing loss to provide meaningful, musically educative experiences for this group.

The 1989 "Convention on the Rights of the Child" resulted in the documenting of four basic principles—one of which is respecting the views of the child. Article 12 promotes the importance of the child's own viewpoint in advocating for oneself in judicial and administrative proceedings. It is in that spirit this research seeks to give voice to students who are part of this unique population and through their experience in an inclusive instrumental music education setting, music educators will more fully understand their motivations for continued participation, accommodations and strategies for learning, and sense of social connectedness.

Definition of Terms

Bone Conduction Hearing Aid: a hearing aid that utilizes a titanium prosthesis surgically embedded in the skull. The implanted prosthesis transmits vibrations from a sound processor through direct conduction of the bone to the inner ear (Paul & Whitelaw, 2011).

Cochlea: the shell shaped, fluid filled structure in the inner ear that houses the organ of Corti in which the hair cells are contained. As these hair cells vibrate, the auditory nerve transmits the information to the brain which is interpreted as sound (Paul & Whitelaw, 2011).

Cochlear Implant (CI): a prosthetic device that enables an individual with sensorineural deafness to receive aural input by way of electrical stimulation of the auditory nerve (Paul & Whitelaw, 2011).

Conductive Hearing Loss: term describing hearing impairment due to malfunction of the outer and/or middle ear structure. Typically, hearing aids can improve the hearing conduction of an individual with this type of hearing loss (Paul & Whitelaw, 2011).

Hearing Aids: "a small electronic apparatus that amplifies sound and is worn in or behind the ear to compensate for impaired hearing" (American Heritage Medical Dictionary, 2007).

Hair Cells: When vibrated these cells create a nerve impulse that is carried to the brain and interpreted as sound. Approximately 20,000 outer and 3,500 inner hair cells reside in a healthy cochlea (Paul & Whitelaw, 2011).

Inclusion: refers to the "opportunity for persons with a disability to participate fully in all the educational, employment, consumer, recreational, community, and domestic activities that typify everyday society" (Tilstone, Floriani, & Rose, 1998, p. 16). Inclusion is unique from mainstreaming in that included students may be using different material than their peers and personalized assistance.

Instrumental Music Education: typically referenced in conjunction with music learning through the performance of Western, wind, brass, string or percussion instruments (Colwell & Hewitt, 2011).

Learning Strategy: a sequence of actions to attain a learning objective (Klauer, 1988).

Least Restrictive Environment: As indicated by Public Law 94-142, students with disabilities have a right to be educated in an academic and social setting with their peers, when their needs can be met in that environment (Wood, 1993).

Mainstreaming: the act of integrating students with disabilities into regular classrooms to learn alongside students in a regular classroom. This is unique from inclusion in that mainstreamed students are expected to meet the same requirements as all other students.

Music perception: the ability to discriminate musical elements; including discerning pitch changes, identifying instruments based on timbre, and identifying melodies.

Music appraisal: referring to the enjoyment of music, finding it pleasant. An individual may have high appraisal rates while maintaining low perceptive rates and vice versa.

Pre lingual implantation: undergoing cochlear implantation before language has developed. Generally this is a result of congenital deafness in a child (Paul & Whitelaw, 2011).

Post lingual implantation: undergoing cochlear implantation after language has developed. Typical of adult cochlear implant users, this is often the result of a degenerative hearing impairment (Paul & Whitelaw, 2011).

Sensorineural hearing loss: term describing hearing impairment due to malfunction of a structure within the inner ear. Typically, hair cells are missing or damaged and subsequently no sound signals are transferred to the hearing center of the brain (Paul & Whitelaw, 2011).

CHAPTER TWO: REVIEW OF LITERATURE

The purpose of this study was to explore the experiences of two students with hearing loss participating in instrumental music. A summary of the research literature most relevant to the current study is organized into five sections in this chapter. The first section is a brief review of the biology of hearing. Second is a review of research on mainstreaming and inclusion. The third section includes research related to music perception by individuals with hearing loss. Fourth, research on teacher and student perceptions of students with hearing loss participating in music classes is presented followed by the experiences of students with disabilities in instrumental music.

When reviewing the music education research applicable to the experiences of students with hearing loss in instrumental music, it became evident that music education researchers have focused their attention primarily on teachers who instruct students with special needs, and the attitudes of non-disabled students towards students with disability. In review of appropriate literature, the experiences of disabled students themselves have scarcely been researched, while investigations into the population of students with hearing loss participating in music have yet to be addressed.

It is noteworthy, although outside the scope of this investigation, that there is a body of 'best practice' articles regarding the integration of students with hearing loss in the music classroom (Atkins & Donovan, 1984; Butler, 2004; Darrow, 1985; Darrow, 2007; Gouge, 1990; Hummel, 1971; Schraer-Joiner & Prause-Weber, 2009). Also worth noting, yet outside the scope of this project, is the research into the music of children in schools for the deaf (Brown & Denney, 1997; Sheldon, 1997; Solomon, 1980; Spitzer, 1984). As discussed in chapter one, Sheldon's (1997) historical account of the Brass Band at the

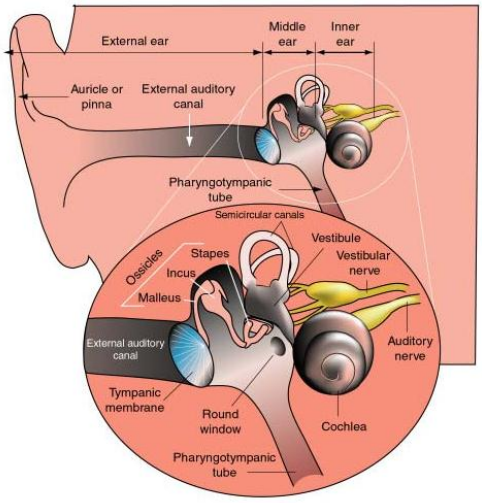
Illinois School for the Deaf is the only research documenting students with hearing loss participating specifically in instrumental music as it is currently defined—utilizing brass, woodwind, percussion, or string instruments.

The next section provides an overview of the biology of hearing. This detailed information provides a context for understanding the kind of hearing loss and technologies used by Angela and Justin, the two student informants for this research.

Biology of Hearing

The biological action of hearing is a complex process. Not all hearing loss is alike. Understanding a student's unique hearing situation and the nature of their hearing loss is important to the story of each case in this dissertation. The next section is a brief review of the biology of hearing and descriptions of the most common forms of hearing loss. The following figure (Figure 2) provides a visual reference for the subsequent descriptions.

Figure 2. Anatomy of the Ear



The physical action of hearing is a unique process that encompasses four portions of the ear. Sound waves travel through the external, middle, and inner ear before moving to the hearing mechanisms of the brain. Hearing loss may be associated with one or more of the four portions of the ear (Paul & Whitelaw, 2011).

The outer ear consists of the pinna or auricle (external portion) and the ear canal. Made up of skin-covered cartilage, the pinna is shaped in a way that captures sound waves and directs them through the ear canal towards the tympanic membrane or eardrum, which separates the outer and middle ear. The middle ear, beginning at the tympanic membrane, encompasses a chamber where the ossicles (three tiny bones) connect the tympanic membrane to the inner ear. As the eardrum vibrates, the three tiny bones (malleus, incus, and stapes) amplify the vibrations and transmit them to the oval window, a thin membrane at the entrance of the inner ear. The acoustic reflex, a biological volume dampener, takes place in the middle ear, where the stapedius muscle contracts in response to loud noise, protecting the inner ear from sound injury (Paul & Whitelaw, 2011).

The small air-filled chamber located in the middle ear is connected to the back of the nose via the eustachian tube. Allowing air to enter the middle ear assists in maintaining balanced air pressure on both sides of the tympanic membrane and in stopping fluid from collecting. When air pressure is not balanced, as happens when ascending in an airplane or descending into water, swallowing or "popping" one's ears relieves the pressure build-up. Conductive hearing loss is the term attributed to hearing loss when there is a malfunctioning of elements in the middle and outer ear. Although there are variations in the severity of conductive hearing loss, hearing aids are typically the assistive device used with the presence of conductive hearing loss (Paul & Whitelaw, 2011).

The inner ear contains the cochlea, which is integral to the hearing process, and the vestibular system, which is integral to balance. Shaped like a snail shell and filled with fluid, the cochlea houses the organ of Corti. The organ of Corti contains the approximately 20,000 hair cells that vibrate when the fluid inside the cochlea is stimulated by sound vibrations when transmitted from the ossicles in the middle ear. Sound frequencies excite hair cells in the cochlea, which convert the vibrations into nerve impulses that are in turn sent via fibers of the cochlear nerve to the brain. Sensorineural hearing loss is the term attributed to the malfunctioning of components in the inner ear, which may be a congenital phenomenon or the result of damage from loud noise. Cochlear implants are the typical form of assistance prescribed for this form of hearing loss (Paul & Whitelaw, 2011).

Inclusion and Mainstreaming

One of the orienting questions that frame this study was: How are students with hearing loss experiencing inclusion in the secondary instrumental classroom? This section of the literature review describes research that has addressed this question. The first portion addresses the definitions and differences in the concept of inclusion and mainstreaming, the second summarizes applicable research found in deaf education regarding the effects of students with hearing loss learning in a general education setting—one where the majority of students are typically hearing. The third section attends to research on the mainstreaming and inclusion of students with disabilities in music education settings.

General Education Settings: Inclusion and Mainstreaming

The majority of deaf students attend school in general education settings, that is they are in a learning environment dominated by typically hearing peers. Other schooling

options for deaf students fall into four categories: (a) separate schools, (b) resource rooms, (c) separate classes, and (d) co-enrollment classes (Spencer & Marschark, 2010). Just over 12% of deaf students attend separate schools (National Center for Education Statistics, 2008). These "schools for the deaf" are typically populated with 150-200 students, utilize sign language as the communication mode, and have residential capabilities (Moores, 1996; Schirmer, 2001). Co-enrollment classes, consisting of virtually the same number of deaf and hearing students, are the most rare schooling option (Stinson & Kluwin, 2009).

Resource rooms and separate classes are both held on public school campuses populated primarily by typically hearing students. The distinction between these two placement options is the amount of time students take part in general education courses. Students in resource rooms are in a specialized class with a teacher of the deaf and other students with hearing loss for only part of the day for selected subjects while students taking part in a separate class spend all or virtually all of their school day with a teacher of the deaf alongside other deaf students (Stinson & Kluwin, 2009). Just over 36% of deaf students take part in either a resource or separate class (National Center for Education Statistics, 2008).

Mainstreaming and Inclusion Defined

When students with hearing loss take part in general education classes, mainstreaming or inclusion are terms frequently used to describe the students' placement. Often used interchangeably, there are unique placement, pragmatic and philosophical ideas that separate the two (Stinson & Kluwin, 2009). Stinson & Antia (1999) write that inclusion places the deaf student in a general education classroom for all or most of their education while mainstreaming suggests that the deaf student be in a public school

attended by typically hearing students but not necessarily in a general education classroom.

Inclusion has deeper philosophical priorities, namely that all students, including those with disabilities, are participating members of the classroom (Antia et al., 2002). In an inclusive setting, special services are offered within the general education classroom as opposed to outside of it and the general education teacher is assumed to have the responsibility for educating all students.

Similarly yet distinctly, mainstreaming intends to incorporate students with hearing loss into the general education class who are able to meet the 'preset' classroom expectations. "Mainstreaming places greater emphasis on the child's being able to adapt to the general education classroom, whereas inclusion places greater emphasis on the adaptation of the general education classroom to the child" (Stinson & Kluwin, 2009, p. 50).

The subjects in this dissertation are enrolled in schools made up of virtually all hearing students in a mainstream or inclusive setting. Research, predominantly in deaf education, has explored the effects of schooling in this setting on students with hearing loss.

Social development: Effects of Schooling and Communication Style

The complete social development of a child is heavily dependent on positive interaction with peers. Through social interaction, children develop the skills necessary to navigate friendships leading to socialization as an adult (Fine, 1981; Garvey, 1984; Rubin, 1980). Through communication and social play, children learn to take on diverse perspectives in social situations, manage conflict, use tact, and negotiate (Odom, McConnell, & McEvoy, 1992). When barriers to communication are present in peer interaction due to

an issue such as hearing loss, there may be an effect on quality and quantity of relationship. Subsequently, researchers have focused on these interactions.

While there have been a significant number of studies aimed at the issue of peer communication, controlling for variables such as language ability, age, mode of communication, and interaction partner's language ability and familiarity, is problematic within the studies, and generalization is cautioned. A significant portion of the research has included young children usually between kindergarten and elementary school aged.

With regard to the frequency and duration of peer interaction deaf and hard of hearing (d/hh), children interact less than their age appropriate hearing counterparts (Antia 1981; Higginbotham and Baker, 1981; Keating and Mirus; 2003; Levy-Shiff and Hoffman, 1985; McCauley, Brunings, and Kennedy 1976; Vandell and George, 1981), and prefer to interact with those children with similar hearing or language capability (Lederberg, 1991; Minnett, Clark, and Wilson, 1994; Vandell and George, 1981). When controlling for language and communication ability, Lederberg (1991) observed that children with profound hearing loss who were part of a high language group, ranked higher than the medium and low language group in both quantity of initiated interactions and duration of play. Additionally, the group with higher language and communicative ability spent significantly more time interacting with children from the same group (high language), than those children with medium or low language ability.

Controlling for mode of communication, Minnett, Clark, and Wilson (1994) observed no differences in total amount of social play and communication between a 15 member group of oral communicators, 15 member group of speech and sign communicators and 30

member group of hearing peers. However, all children preferred to interact with members of their own communicative mode.

Similarly, researchers have found adolescent aged children demonstrating similar affinity for interaction with those using similar communication modes. Stinson, Whitmore and Kluwin (1996) and Stinson et al., (1992) gathered self-reported data from 451 and 64 deaf and hard of hearing subjects, respectively. These studies corroborated the notion that adolescents using oral communication more frequently interacted with their hearing peers while those d/hh using sign self-reported interacting predominantly with other d/hh adolescents.

Students with hearing loss do interact with their hearing peers (Kluwin, Stinson, & Cicerini, 2002) and typically hearing students generally have positive sentiments about deaf students in a general education setting; however, their interaction can be inhibited due to communication difficulties and negative beliefs by their hearing peers. A decreased rate of relationship has the capacity to result in less frequent and less satisfactory interactions (Hurt & Gonzales, 1988; Schirmer, 2001) and a sense of exclusion from the social life of their school and social community (Angelides & Aravi, 2007b). This sentiment has been documented for nearly two decades. In summary, deaf students in an inclusive environment report an absence of close friendships (Antia, Kreimeyer & Eldredge, 1994, Stinson, Whitmore, & Kluwin, 1996) and feel more emotionally secure and more accepted in relationships with others of similar hearing capability and language development (Foster, 1989; Stinson & Whitmore, 1991). These findings paint a precarious picture for the student with hearing loss in an inclusive setting.

Summary

The research reviewed indicated that students with hearing loss are participating in a general education setting; however their experiences are somewhat difficult. The research reviewed demonstrates they gravitate toward interaction with peers of similar communication mode and language ability and that they sense exclusion. Hearing loss has the potential to effect all aspects of learning as a result of challenges with communication.

Important to healthy identity development is a sense of belonging to a social network (Connell, Aber, & Walker, 1995). "One's social network might include a variety of individuals including . . . members of organizations or groups in which the adolescent actively participates" where the social group is a resource for "coping with stress by providing a variety of functions including emotional support, validation, information, advice, feelings of solidarity, and actual physical . . . assistance" (Calderon & Greenberg, 2009, p. 192). The secondary instrumental music setting is a social network in that it contains a variety of individuals where adolescents with hearing loss may actively participate. Is the social network of instrumental music assisting students with hearing loss in making meaningful peer to peer relationships? It is the intent of this dissertation to address this question through exploring the experiences of students with hearing loss in instrumental music education.

Mainstreaming and Inclusion of Students with Disabilities in Music Education

Many investigators have researched the status of children with disabilities, including hearing loss, in a mainstream music education environment. Darrow's (1990) article, "Research on Mainstreaming in Music Education," and Jellison and Taylor's (2007) article, "Attitudes Toward Inclusion and Students with Disabilities: A Review of Three

Decades of Music Research," have provided reviews of published literature as it relates to music education and students with disabilities.

Darrow and Gfeller's (1991) study of public school music programs' mainstreaming practices of students with hearing impairment is the most salient treatment of the population of students with hearing loss and mainstream music education. The purpose of the study was to; (a) examine the status of music instruction for mainstreamed hearing impaired students, and (b) examine the factors that contribute to the successful mainstreaming of hearing impaired students in public school music programs.

The instrument responsible for data collection was a survey developed by (a) adapting questions used in a previous study by the authors (Gfeller et al., 1990) concerned with the mainstreaming practices of exceptional children, (b) examining the suitability of items from other extant questionnaires on music education for hearing impaired students in the self-contained classroom, (c) reviewing methodological and experimental articles concerned with the music capabilities of hearing impaired children and the educational methods commonly used with them, (d) noting curricular objectives listed in the 1986 MENC document, *The School Music Program: Description and Standards,* and (e) drawing on the professional experiences of the authors and their colleagues in public schools and rehabilitation settings.

After initial construction of the survey instrument, nine judges from the fields of music education, deaf education/speech pathology, and music therapy reviewed the survey for clarity, format, and applicability to the research questions.

Three hundred surveys were sent to a stratified random sample of directors of deaf education programs from all 50 states. These programs were identified in an annual listing

of deaf education programs found in the "American Annals of the Deaf." Directors were asked to send the surveys to the attention of the music teacher at schools where hearing impaired students were enrolled. A second survey was sent to non-respondents within two weeks of the return date. In both instances, directors were contacted by phone prior to the original and follow up mailing. Both prompts resulted in a 32% return rate. Of those that were returned, 86% were completed by music educators and 14% by deaf educators either indicating students do not attend music or that it is unavailable in their schools.

Respondents indicated that 52% of the hearing impaired students attended regular music classes. The subsequent question asked if there was a self-contained option available for those who were not in a mainstream setting. Forty-seven percent did not have a self-contained option, while 26% did have a self-contained class for students with hearing impairment. Twenty-six percent of the students were in self-contained classrooms, while 47% did not have the option for a self-contained classroom. The final eight percent said that a self-contained option as mainstreaming was the expectation and therefore did not indicate affirmatively to the presence of a self-contained music class.

The data from respondents indicated that almost a quarter of all hearing impaired students (23%) receive no music education whatsoever. The open-ended explanations for that data included the following themes: no music is available in the district, no music programs appropriate for hearing impaired students are available, music is an elective and not of interest, there is lack of time for music, hearing impaired students are preschool age and too young for elementary school music.

In reference to the questions about music educator participation in placement options, preparation to work with this population, and sources of support, Darrow and

Gfeller (1991) reveal unfortunate findings. Corroborating findings from Gilbert and Asmus, (1981), Frisque et al., (1994), Gfeller et al,.(1990) music educators feel ill-prepared to teach students with disabilities, are rarely consulted about placement of students with disabilities in their classes, and sense little support in teaching students with unique needs. The data showed that only 31% of music educators were consulted about placement of children with hearing loss in their mainstream music classes, while only 15% actually participated in Individual Education Plans. Sixty-eight percent of these students used sign and speech to communicate; only 19% of teachers knew sign language. Music teachers sensed very little support from administrators; rather, sign interpreters were the most common source of teacher support, as indicated by 47% of respondents.

When reporting on barriers to effective music education of students with hearing loss, the following themes arose: a lack of appropriate materials, equipment, and/or specialized curriculum for hearing impaired students; lack of knowledge specific to the disability of hearing impairment; and lack of or poor communication with teachers of the hearing impaired. Of interest to the researchers were the music teachers primary objectives for hearing impaired students in their music programs. Closest to the spirit of mainstreaming, 32% indicated that they have the same objectives as typically hearing students, while 12% adapt their objectives. Fifty-percent said they adapt some objectives and maintain others. All participants said that musical skills and knowledge were important, and 54% indicated that non-musical secondary objectives were included as objectives.

Adaptations to activities that music teachers found most successful included careful selection of instruments (low frequency, percussive), sign singing, careful physical

placement of the student for speech reading, rhythm and movement activities, extensive use of visual aids, peer assistance, and use of special auditory trainers or amplification systems, interpreters, and Kodaly hand signs.

Darrow and Gfeller's (1991) study points to three areas that positively affect the mainstreaming of hearing impaired students in music: (a) the need for clearly identified educational objectives, (b) the need for adequate educational preparation of teachers, and (c) the need for instructional support in the classroom and in curriculum planning.

The authors recommend that teachers increase their knowledge of deaf education through workshops or college courses and possibly combine hearing impaired students from several schools in one location for music instruction.

Generalizing any study about students with hearing loss is very difficult. There are several aspects to this study that should be taken into consideration. This study's relevance is somewhat limited for a few reasons—namely, a small return rate (32%), the fact that it was completed before cochlear implants became a significant option for children with hearing loss, and because the majority of students in this program were using sign and speech to communicate.

Participation of Students with Disabilities. Further research in music education has documented the participation of students with disabilities in music, often including data related to students with hearing loss. Typically these studies are in the form of a survey whose intended participant is the school music teacher.

Shehan's (1977) brief' survey of "exceptional children" investigated the mainstreaming practices of 32 school districts in Ohio. The study found that 18.75% of the

surveyed districts mainstream children who have hearing loss, while 9.37% provided special music classes for these students.

Gilbert and Asmus (1981) surveyed 789 subjects as part of a nationwide survey. They attempted to document the participation of music educators in mainstreaming and their professional needs. Teachers were from both elementary and secondary schools and represented general, instrumental, and choral emphases.

Results of the survey indicated significantly more general music and elementary teacher contact with disabled students and awareness of PL 94-142 compared to their secondary instrumental and vocal counterparts. Of the entire subject pool, 62% worked with students with disability, while only 23% of teachers participate in the students' Individual Education Program (IEP).

The authors concluded that although a majority of music educators were working with students with disability, there is a perceived need for more information about methods and techniques in meeting the needs of these students.

Frisque, Niebur, and Humphrey (1994) researched the music mainstreaming practices in Arizona. The results indicate that the vast majority of respondents (94%) had, at one point in their career, taught students with disabilities in their music class, while 84% were currently teaching a student with disability.

Specific to hearing loss, 32% of Arizona music teachers who responded to the questionnaire were teaching students with hearing loss in their music classes. This is similar to Gfeller et al.'s (1990) finding, where 40% of Kansas and Iowa music teachers had experience teaching students with hearing loss in their classes.

More recently, Hahn's (2010) dissertation studied the professional preparation and practices of music educators in relation to teaching students with formally identified disabilities through a questionnaire sent to members of the Pennsylvania Music Educators Association. Ninety-three percent of respondents indicated teaching students receiving special education services, with 51.5% of music teachers reporting a student with hearing impairment in their classroom. This was the highest rating, in relationship to all previous studies, demonstrating the percentage of teachers indicating experience with teaching students with hearing loss.

Summary

Students with hearing loss are enrolled in mainstreamed music classes. The most recent studies have indicated that over fifty-percent of music teachers have taught a student with hearing loss. Darrow and Gfeller's (1991) research indicated just over fifty-percent of students with hearing loss in their study were enrolled in a music class which is similar to Hahn's (2010) recent findings that found 51.5% of music teachers had taught a student with a hearing impairment. Compared to earlier studies there appears to be a growth in the percentage of teachers who have taught a student with hearing loss in their music class.

Hearing Loss and Music Perception

Although the central purpose of this dissertation was not to investigate music perception or discriminatory parameters of children with hearing loss, a review of the research regarding the music perception of children with hearing loss is appropriate, because one assumption of this dissertation is that students with hearing loss do not hear music in the same way as students with typical hearing.

Extensive reviews of literature in regards to music perception of cochlear implantees have been composed by Gfeller (2009) and McDermott (2004). Older research, focused on students with hearing loss who were utilizing acoustic hearing through hearing aids, indicates that students with hearing loss are capable of developing various music skills, though perhaps delayed when compared to their hearing counterparts (Darrow, 1987, 1989; Darrow & Goll, 1989), yet face challenges in discriminating some elements of music, namely pitch.

Decades-old research has demonstrated that individuals with hearing loss are capable of musical comprehension. Rileigh & Odom (1972), analyzing the relationship between hearing and rhythm performance, found no significant differences in the reproduction of rhythms due to hearing status. The study indicated that hearing loss might delay the developmental process, but it would not necessarily impair it.

Gengel (1969) found that some deaf children could discriminate pitch change as small as a minor second with practice. Ford (1988), in studying younger deaf subjects, found that the level of hearing loss did not correlate with a child's ability to discriminate pitch. In addition, the students' language ability was not necessarily correlated with pitch discrimination ability. Although simplistic, the evidence indicated that practicing the discrimination of pitch increases the ability of deaf individuals to discriminate pitch.

Rhythmic Discimination

Vibrotactile stimuli as a supplementary tool in teaching tonal and rhythmic concepts has been studied with positive results. Darrow (1992) studied the effect of vibrotactile stimuli on the pitch discrimination ability of hearing impaired children. More than half of the subjects improved their pitch discrimination rate when coupled with supporting

vibrotactile stimuli. The stimuli were hypothesized to be less useful as the child ages because of their increased interaction with sound; yet, in this case, the additional sensory input seemed beneficial for the entire age spectrum studied.

Both Darrow (1987) and Gfeller and Baumann (1988) used the *Primary Measures of Music Audiation* (PMMA) test to examine rhythmic perception, finding that hearing impairment does negatively influence rhythmic and tonal perception, with rhythmic perception being the stronger of the two, contradicting Rileigh and Odom (1972). Gfeller and Baumann (1988) administered the rhythmic portion of the PMMA test to hearing impaired children while wearing vibrotactile devices. Results indicated that the vibrotactile information improved the ability of hearing impaired subjects in identifying rhythmic concepts. Corroborated by Darrow and Goll (1989) and Darrow (1992), vibrotactile stimuli was successful in translating rhythm and tone to hearing impaired children.

As the previous studies indicate, hearing impaired individuals demonstrate some propensity towards rhythmic comprehension. To what extent does that capability compare with those who have typical hearing? Darrow (1979) compared the beat reproduction of normal hearing and hearing impaired subjects and found the hearing impaired subjects demonstrated greater fluctuation than those with normal hearing. Further, typically hearing subjects tended to rush the beat whereas hearing impaired subjects were slower than the beat. Squires (1982), corroborating those findings, also found that subjects were more accurate when using sustaining instruments confirming the propensity towards "filled" beats rather than "empty" beats, as determined by Roelofs and Zeeman (1949).

Korduba (1975) found no significant difference in rhythm reproduction between hearing and hearing impaired subjects; however, conflicting data (Darrow 1984; Sterritt, Camp, & Lipman, 1966; Squires 1982) indicates a considerable disparity while reproducing the melodic rhythm of familiar children's songs when comparing normal hearing with hearing impaired individuals. Rhythmic concepts were found to be more solidified when reinforced through vibrotactile information, as noted in Darrow and Goll (1989).

In reference to tonal perception recognition, Ford (1988) studied the ability of hearing impaired children to discriminate the pitch of complex tones. "High correlations were found between pitch discrimination abilities and hearing levels among younger subjects while no significant differences were found on the basis of age and school music programs" (Ford, 1988, p. 11).

Darrow (2006), through the use of face drawings to depict emotion, found that subjects with hearing loss assigned considerably different emotions to music than typical hearing children. When assigning meaning to sounds from Saint-Saen's *Carnival of the Animals*, hearing impaired subjects agreed significantly less often with the composer's intended meaning than vision loss subjects.

Staum (1987) sought to improve verbal rhythmic and intonational accuracy by way of a music notation program. The treatment did not find significant results, save the oldest subjects who already had some reading ability. The older students were thought to transfer the new stimuli to vocabulary already learned more efficiently.

Darrow (1984) posited that a low result from hearing impaired subjects compared to normal hearing subjects in melodic rhythmic duplication may be a result of the lack of musical training within the child's educational experience. Darrow and Starmer (1986)

revealed that specific educative musical tasks increase the musical comprehension and speech communication of deaf students, further establishing the notion that students with hearing loss who engage in educative musical experiences are capable of musical development.

At the end of the 21st century, a significant research line took shape in researching the music perception of the population with hearing loss utilizing cochlear implants. Unlike hearing aids, the cochlear implant is fully digital hearing, and researchers have been interested in the perceptual capabilities of this device.

Music and Cochlear Implants. Intended for decoding elements of speech, the cochlear implant (CI) is limited in its ability to translate musical elements, specifically pitch and timbre. Further compounding perceptual difficulties are (a) physiological, pathological, and environmental factors, such as melodic pitch memory, musical training and knowledge, (b) the location, number, and density of surviving neurons in the cochlea, (c) the electrode's placement or insertion depth, (d) the impedance surrounding the electrodes, (e) pathological processes, and (f) central processing factors (Looi et al., 2008; McDermott, 2004).

Using the *Primary Measures of Music Audiation* test, Gfeller and Lansing (1992) studied the rhythmic and tonal perception of postlingual cochlear implant users and found evidence similar to those hearing impaired studies revealing the difficulty of tonal subtests compared with the rhythmic subtests.

Test Development. Music perception has been measured in a number of studies. Tools have been developed to measure music perception, including: Appreciation of Music in Cochlear Implantees (AMICI) (Spitzer, Mancuso, & Cheng, 2008; Cooper, Tobey, & Lizou,

2008); Montreal Battery for Evaluation of Amusia (MBEA) (Peretz, Champod, & Hyde, 2003); Melodic Contour Identification test (MCI) (Galvin, Fu, & Nogaki, 2007); and University of Washington Clinical Assessment of Music Perception (UW-CAMP) (Nimmons et al., 2008).

The aim of the Spitzer, Mancuso, and Cheng (2008) study was to develop *The Appreciation of Music in Cochlear Implantees* (AMICI), which includes portions addressing the (a) discrimination of music versus noise, (b) identification of musical instruments, (c) identification of musical styles, and (d) recognition of individual musical pieces.

Discriminating noise from music was the most accurate in both normal hearing (NH) and CI groups, while identification of melody was least precise. In addition, questions regarding style and instrument identification revealed common levels of difficulty for both groups of subjects. Not surprisingly, the CI users had substantially more difficulty with the questions that required pitch and timbre perception.

Frequency Preference. Research has demonstrated CI users' affinity for lower pitched tones. Looi and She (2010) found adult CI participants preferred low pitched (53%) to high pitched (7%) instruments and male (38%) to female (11%) singers. Gfeller et al. (2002) established that within the same instrument family (strings, woodwinds, etc.), the lower pitched instruments were more likely to receive a favorable rating, and subjects in Looi et al. (2008) demonstrated significantly more accuracy at pitch ranking tasks when the musical examples were sung by a male compared to a female vocalist. Further research suggests that CI users are able to more reliably use pitch cues when base frequencies are below 300hz (approximately middle C) (Pijl, 1997; Zeng, 2002).

Electric plus Acoustic vs. Electric only Hearing. Acoustic hearing is preferable to electronic hearing. The cochlear implant is unable to convert all of the intricacies of sound patterns into an electrical signal and is therefore functionally inferior to natural hearing. Research has documented the benefit of bimodal hearing as it relates to music perception (Gantz & Turner, 2003; Gantz et al., 2005; Kong et al., 2004). Subjects in Looi and She (2010) who were using bimodal assistance (acoustic hearing and digital hearing) commented that music sounds more natural, warmer, organic, and rounds out the sound. Their ratings of musical styles were 'more normal;' they were significantly better able to follow the melody line and could identify musical styles more readily than those subjects who were using only digital hearing.

When acoustic hearing is not an option, is there a benefit to music perception through two CIs rather than one? Research has documented the benefit of bilateral CI usage as it relates to speech acquisition, so it is fitting that the comparison between bilateral and unilateral music perception should follow.

Veekmans et al. (2009) investigated the listening habits and musical enjoyment of the post-lingually deafened implantees, 23 of whom were unilateral cochlear implant(UCI) Med El users, and 23 of whom were bilateral cochlear implant(BCI) Med El users. The bilateral implantees had an average of 2.54 years between implantation of their first and second device.

Data results denoted a general increase in BCI users' enjoyment and listening after their second implant. The questionnaire revealed that 95.5% of BCI users believed music generally sounds better, 90% reported it as more natural, and 85% indicated that it is more pleasant. BCI participants listened to music 'to be happy, to relax' and to 'influence mood'

significantly more than the UCI subjects. In reference to instrument timbre appreciation, the trumpet, clarinet, tuba, kettle drum, and cymbals were liked more by CI participants than by NH subjects, while violin was preferred by the typically hearing subjects over both CI groups.

Though not significant, BCI participants were able to distinguish between high and low frequencies, recognize rhythm, and recognize melody with greater probability than their UCI counterparts. Further indication of BCI users' preference for music was their likelihood to indicate music as 'natural' (82.6%) compared to UCI subjects' 39.1%.

The most recent account of differences in pitch recognition come from Looi and Radford (2011) study of pre-lingually deafened children. Their research did not find the same advantage of bilateral use as Veekmans et al. (2009) found in adult users. Researchers tested three groups of pre-lingually deafened children using three modes of assistance: eight cochlear implantees, six with bilateral hearing aids, and nine hearing bimodally (one implant and one hearing aid). The participants were asked to pitch rank a pair of sung vowels that were one, half, and a quarter octave apart. Those with acoustic hearing (hearing aid) demonstrated a significantly higher ability to discriminate the intervals than either group of cochlear implantees. Unlike their adult post-lingual counterparts in Veekmans et al. (2009), there was no significant difference in the results of either group using electric stimulation.

Melody and Song Recognition. Experimental studies that attempt to further researchers' understanding of what children with cochlear implants are hearing are not as common as studies with adult CI users. Adult CI users are often post-lingually deafened and therefore may have memory of acoustic hearing with which to compare their new

electric hearing. The study by Vongpraisal, Trehub, and Schellenberg (2006) adds to a growing body of work focused on the music processing and perception of children with cochlear implants.

The purpose was to compare song identification processes of the CI users in relation to typically hearing counterparts. As expected, the normally hearing group performed better on all three tasks, but some CI users did perform at better than chance levels in identifying the original and instrumental versions. It is interesting to note that those subjects who self-identified as "avid fans," implicating greater time listening to the song and artist, did not perform any better than those who did not.

Experiments two, three, and four within the study focused on pitch discrimination in an exercise of a repeating tone with one alteration, discriminating pitch changes with variable tones present (chord quality) and subject affinity toward the three versions of the song. Results of the study confirm previous research, which documents CI users' (both adult and children) inability to discriminate melody on pitch alone. The positive scores for recognizing instrumental versions indicate CI users' ability to use timbre and rhythmic cues, not simply lyrics, to make discriminations.

It may be inferred that child CI users' affinity for music is due to its social nature; yet the CI users consistently marked the original and instrumental versions of the songs as favorable and the version including the melody as less than favorable. If motivation is purely social, the decrease in desirability for melody alone ought not be quite so distinct. Lastly, and somewhat in contrast to previous research, rates of song identification not in original form were higher in this study.

Musical Training. Early research confirming the ability to increase CI users' music perception through training has led to further research seeking to find the most effective means of training. The purpose of Driscoll et al.'s (2009) study was to examine the efficiency and effectiveness of three types of training by using normally hearing individuals (n=66) listening through a cochlear implant simulator.

The outcome results indicate that there are differences in the effectiveness of teaching a CI user how to discriminate timbres. Treatments that gave some feedback were more beneficial than the repeated exposure group, and significant gains were made in both feedback groups from the first outcome testing in week three. Specific instruction supplementing the recording proved to be the more successful treatment and established the notion that timbre recognition can be taught with intentional, consistent, and feedback-rich processes.

As demonstrated in the previous study, researchers have begun to investigate the effect of training on increasing the music perception levels of CI users. Findings from this line of research could have an impact on the inclusion of music in CI users' schooling and the understanding that music perception through a CI can, in essence, be trained.

The study by Looi and She (2010) gathered adult CI users (n=133) preferences and needs regarding a Music Training Program.

The *UCMLQ* differed from previous questionnaires (Gfeller et al., 1998; Gfeller et al., 2000; Gfeller et al., 2002a; Gfeller et al., 2002b) by asking CI users what they expect music to sound like to a typically hearing person rather than compare their post-implant hearing to their pre-implant memory of music. The researchers made this change due to the nature

of progressive hearing loss and its impact on CI users' ability to accurately remember what music sounded like.

Findings from the study that would be useful for a music training program are: (a) a preference for fewer performers compared to more (e.g., one, two, and three performers over a large group; one performer to two performers); (b) a preference for low pitched instruments (53%); and (c) a preference for maintaining medium volume (56%) to maximize enjoyment. In regards to interest in a music training program, 54% indicated interest in an MTP if it were available; 65% would prefer such a class to include a variety of styles as opposed to their style of preference.

Music Experiences and Enjoyment. According to adult CI users, music is second only to speech communication in level of auditory importance in their lives (Gfeller et al., 2000)—this from a population of CI users who have generally had experience with acoustic hearing and who typically rate music as less than enjoyable post-implantation (Gfeller et al., 2000; Lassaletta et al., 2007; McDermott, 2004; Looi et al., 2008). In a survey by Gfeller et al. (1998), it was noted that 75% of hearing impaired adults listened and enjoyed music extensively prior to hearing loss. In contrast, 83% of the same group found their enjoyment decreased after cochlear implantation. Although this data is in regard to individuals who pursued cochlear implants, it does illustrate the negative feeling towards the loss of music in one's life and is an indication of value to them before their loss. Moreover, 98% of adult CI users in Looi and She's (2010) study indicated they would like music to sound like it does for typically-hearing people. For post-lingual CI users, negative feelings toward the way music sounds through their electronic hearing may result in lower rates of participation. For children who may not have had previous experience with

acoustic hearing, music may be less of a disappointment solely because they have nothing with which to compare their current state of hearing.

An influential purpose for music activity is the emotional communication that occurs between music and listener. Darrow (2006) investigated emotional representation in music from the perspective of the normal hearing and hearing impaired. Results indicate that the regular hearing subjects' response to music selections were more closely in line with the composers' intentions, while the hearing impaired subjects responded with less accuracy. Residual hearing in hearing impaired individuals is often weaker in the higher frequencies; subsequently, sound higher in pitch is less audible and is less likely to have meaning attached to it. Those musical excerpts in which hearing impaired subjects did perceive the composer's emotional intent with the most accuracy were largely excerpts with a single line melody, inferring that texture is a factor in the decoding.

An essential question that adults who are involved with educating children with CIs must ask is, how do these children feel about their implants*?* The longitudinal study by Preisler (2005) traced the experiences of 11 children with cochlear implants whose age ranged from eight and a half to ten and a half and who had been implanted between five and seven and a half years old. The interviewer posed questions regarding their thoughts on hearing, memories of the surgery date, living with an implant, communicating at school and at home to elicit data concerning the subjects' self-identity.

Living with an implant was a line of questioning that elicited responses from the participants. One respondent mentioned he liked wearing the device while watching TV, especially when music was on. Some mentioned an affinity for being surrounded by sound and knowing that there were things going on, although sometimes sounds could be

disturbing—even painful—and thus, it was not uncommon for them to desire silence. Several respondents would purposefully turn off the device if sound was distasteful, such as a crying sibling or a class that was too loud.

The physical aesthetic and comfortability of wearing the device was also troublesome to the subjects. A clumsy and oversized processor, often worn around the waist, with cords connected to the headpieces on the head was irritating, as was the constant battery changing. As the participants had grown up, most had switched to a behind-the-ear wearing option, much like a hearing aid. It seems the older female children appreciated this most.

Being able to communicate with those who are in the speaking world is a source of pride for the subjects. One participant commented that when he visits family, it makes him happy that his relatives who do not sign can understand him and vice versa. However, one participant did not like to speak because of its association with training due to its use in the rehabilitory school environment.

Many important themes came from these questions, but perhaps the most salient was the generally positive regard for the implant and the way it connected the deaf subjects to the speaking world. This group of participants, the majority of whom used sign in addition to speech, also made clear that they can often hear people's communication, but still needed sign to understand their thoughts.

Musical Enjoyment. In 1998, Gfeller et al. studied the musical involvement and enjoyment of children with cochlear implants. Data were collected through the use of a questionnaire to be completed by the subjects' parents. *The Musical Background and Appreciation Questionnaire from the Iowa Music Perception and Appraisal Battery* (Gfeller,

Witt, Kim, & Knutson, 1998) had previously been used in a similar study with adult cochlear implant recipients. Questions in the survey tool focused on participants' formal and informal musical experiences, attitudes toward music, circumstances that affect musical enjoyment, and musical choices under their own volition as opposed to those that were part of a curriculum at their educational institution. These foci were analyzed for trends specific to the questions as well as post hoc evaluation of data as it relates to the age of the participants.

The age groups of the participants included 11% between two and five (not yet enrolled in kindergarten), 51% enrolled in elementary school, and 38% enrolled in or who had just completed grades 7-12. Of the elementary age subjects, 73% participate in music instruction as part of their school curriculum, while only 32% of middle and high schoolers were enrolled in formal instruction.

Summary

Music and cochlear implants are part of a larger body of research focused on music and individuals with hearing loss. The extent to which music perception research with hearing aids can be generalized to cochlear implant users is not completely clear. Studying groups of individuals utilizing hearing aids is difficult because their perceptive capacity is unique, not completely contingent on the assistive device. Conversely, cochlear implants provide a stable variable for researchers as all residual hearing (if any) is eliminated upon implantation.

In summary, students with hearing loss do not hear what those with typically hearing hear, yet they are participating in music. The presence of acoustic hearing is preferable to electric hearing, especially as it relates to pitch and timbre discrimination,

while rhythmic perception is not significantly deficient in comparison to typically hearing students. Finally, individuals with hearing loss do demonstrate musical growth through musical learning experiences.

Teacher and student perceptions toward the inclusion of students with disabilities

A considerable amount of research in music education has documented the perceptions of students with disabilities by teachers and students without disabilities. Some research indicates a positive attitude and perception towards students with disabilities in the music classroom, others indicates a reluctance on behalf of teachers.

Student Perceptions of Peers with Disabilities

The perception of students with disabilities has been the subject of a number of research studies. They typically paint a positive picture of non-disabled students' perceptions of students with disability. This section begins with music education research describing non-disabled student perceptions of students with disabilities and concludes with research from general education describing typically hearing students perceptions of students with hearing loss.

The study particularly salient to the topic of instrumental music and disability is Johnson and Darrow's (1997) investigation of band students' attitudinal statements regarding the integration of students with disabilities after viewing five positive models. Instrumental music students were chosen because they had been previously identified as being perceived as the most challenging arena of music education to include students with disabilities (Atterbury, 1986; Gfeller et al., 1990).

The researchers used a Solomon Four Group design to test 757, fifth through twelfth grade student attitudes in relationship to the independent variable of a 30-minute video

produced with Yamaha Corporation specifically for this project. The video depicted students with disability participating in band in a positive manner.

The video documented the positive participation in rehearsal or performance of five students with cognitive, physical, behavioral, or sensory disabilities. Three of the five students were in high school, one was in elementary school, and one was in junior high school. The 30-minute video episode contained approximately three minutes depicting the students' band participation, an interview with the band director of approximately 15 minutes, and ten minutes of comments by the student with disability or their fellow classmates. The video was an example of successful inclusion by its depiction of (a) a supportive and knowledgeable teacher, (b) supportive classmates, (c) use of adaptive instructional strategies, (d) the student with a disability participating as an active and contributing member of the ensemble, and (e) musical goals being met.

Those groups undergoing the treatment demonstrated a "more positive outlook toward inclusion issues" (p. 179) than those in the control groups. Along gender lines, female subjects were more positive in their outlook towards inclusion comfort and efficiency. When comparing schooling groups by age, the results were less conclusive. In a follow-up questionnaire to the treatment groups six weeks following the initial treatment, students continued to demonstrate significantly more positive attitudes than in their pre-test in three of the four domains, indicating the long-lasting effect of the treatment.

The authors were surprised that the elementary students were generally more positive than high school students and were highest in two of the four domains. Contrary to previous research (Darrow & Johnson, 1994; Elliott & Sins, 1981, 1982), maturity as a function of age does not result in more positive attitudes. Substantiating previous research

was the gender effect in the present study. Female subjects demonstrated greater propensity towards inclusion than their male counterparts. Across all age groups and all subscales, females were more positive towards the inclusion of students with disabilities

Darrow and Johnson (1994) sought to research the attitudes of junior and senior high school music students towards students with a disability. The investigation had two purposes; first, it sought to assess the students' attitudes towards disabled people, and second, it expanded on the literature by examining both junior and senior high school students' attitudes towards particular disability groups. The 699 respondents (424 junior high students and 275 senior high students) were instrumental, choral, and piano students attending three summer music camps held on the campus of a Midwestern university.

Results in some instances contradicted other studies in which junior high students were more positive towards inclusion (Johnson & Darrow, 1997), and confirmed others, especially as they related to gender. Darrow and Johnson (1994) revealed senior high students, though not significantly, demonstrated more positive attitudes than their younger counterparts. Unlike Gfeller et al. (1990), where teachers rated deafness as second to emotional/behavioral disabilities in difficulty to mainstream, deafness in the perception of non-disabled students was one of three disabilities rated with high levels of comfort. Lastly, consistent with Johnson and Darrow (1997), females gave ratings consistently more positive than males.

Similar to Darrow and Johnson's (1994) pursuit of perceptions of students with disabilities from the perspective of non-disabled junior and senior high students, Colwell (1998) investigated the effects of information on elementary band students' attitudes toward students with special needs. The researcher utilized a questionnaire, the same

instrument, *Disability Factor Scale*, as did Darrow and Johnson (1994), to acquire data on student attitudes. It is interesting to note, in light of this dissertation, that the subjects (four elementary bands) were chosen because they would be joined the following year in junior high by a mainstreamed student with hearing loss. The same music teacher was the band director of the four elementary schools, as well as the junior high, where the students would be matriculating. He was concerned for the reactions of the non-disabled students upon mainstreaming of the student with significant hearing loss who was not involved with elementary band, but independently pursuing private percussion lessons with another music teacher. Subsequently, Colwell's purpose for the investigation was to assess elementary band students' attitudes toward people with disabilities and to compare strategies for altering negative attitudes.

The results showed some positive trends, although none were statistically significant. Student groups who had viewed only the videotape and those who viewed the tape in addition to hearing about successful participation, had higher mean scores on the post-test. The group that watched the tape and heard the disability labeled reflected a decrease in their average attitude, though not statistically significant.

It seems from this study that the overall attitude towards students with disability is positively affected upon exposure to their participation. Conversely, when elementary students are provided the label of the disability, that positive perception turns somewhat negative.

Using the same instrument, the *Disability Factor Scale*, and with similar objectives as Colwell (1998) and Johnson and Darrow (1997), Darrow and Johnson (2003) purposed to; (a) assess and compare attitudes of junior high school music students from Italy and the

United States toward disabled persons, (b) examine the results in light of special education and music education practices in Italy and the United States, and (c) expand upon the existing literature by differentiating between disability groups and by examining additional dimensions of attitude.

The 229 participant (63 Italian and 166 American) responses were analyzed between genders and nationalities. Both genders and students from both states indicated deafness within the four most accepted disabilities, along with visible scars, heart condition, and physical deformity.

Research in General Education: Perception of Students with Hearing Loss

Typically hearing students generally view deaf students favorably in a general education setting. In a survey of 241 typically hearing students who had contact with 19 deaf students, attitudes were generally positive. Within the subject pool from two secondary schools, 75% gave positive responses toward interacting with the deaf students. Additionally, those that had more frequent interaction with the deaf students had a higher rate of positive response than those who interacted less frequently (Hung & Paul, 2006).

Similarly, Cambra (2002) studied the attitudes of typically hearing students in a general education setting towards their deaf peers. This study surveyed 792, 10-20 year olds in 22 schools. These findings also demonstrated a favorable view towards the deaf students by the subjects. Negative attitudes revealed a belief by the hearing students that deaf students may be better off at a school for the deaf and that the deaf students did not work as hard as the hearing students. In separate studies of preschool through elementary aged children, Capelli et. al., (1995) and Antia & Kreimeyer (1997) found that the deaf students received lower ratings of likeability and acceptance than hearing students

Summary

Research is not completely conclusive regarding the perception of students with disabilities. More recent studies tend to reveal more positive perceptions and attitudes whereas studies earlier than 2000 seem to portray less favorable perceptions. Throughout the studies, females, more than males, view inclusion more positively. Contrasting evidence disallows us from believing a specific age range views disability more positively. In Johnson and Darrow (1997) students in an instrumental music class were chosen as subjects because they had been previously identified as being perceived as the most challenging arena of music education to include students with disabilities (Atterbury, 1986; Gfeller et al., 1990). While this perception may have been true 20 years ago, there does seem to be some evidence to suggest that the sentiment is changing.

Music Teacher Perceptions of Students with Disabilities

Music education researchers have documented music teacher perceptions of students with disabilities. Within many of these studies the population of students with hearing loss is shown to be a population that teachers are reluctant to embrace.

In a study by Wilson and McCrary (1996), music educator attitudes towards students with disabilities were studied following specialized instruction on teaching music to disabled children.

Eighteen graduate music education students participated in the study, 13 with no previous training, five with previous coursework, and 16 with some experience with disabled children. Instruction by a music educator and music therapist used a variety of teaching methods, including simulation of classroom situations, videotapes, guest lectures, and direct instruction, and covered a wide range of material addressing a basic orientation

to various disabilities, legal and policy issues, inclusive classrooms, and strategies for integrating disabled students into music education programs.

Participants were given a survey instrument based on Stuart and Gilbert's (1977) study to measure the effect of the instruction on the participants' attitudes related to comfort, willingness, and capability to work with learners from five broad categories. These five categories included learners with emotional impairments, physical impairments, mental impairments, multiple impairments, and no impairments; the survey contained descriptions of four students from each category. The survey instrument was presented and administered as a pre-test and post-test to the instructional course.

Pre-test scores revealed the participants had high willingness (4.19, SD=0.59) and comfort (3.99, SD=0.55) and low capability (3.38, SD=0.59) to work with exceptional students. Post-test scores revealed the participants had attitudes of high capability (3.49, S=0.63) and decreased feelings of willingness (3.76, SD=0.62) and comfort (3.78, SD=0.49). The difference between the pre-test and post-test scores revealed, by way of a t-test, that the participants' scores regarding their willingness was statistically significant ($p<.05$).

The authors posit that the lack of positive sentiment following the training might be attributed to a more "realistic understanding of the rewards and the challenges in providing appropriate music education services for students with disabilities" (Wilson & McCrary, 1996, p. 30). Further findings corroborate the results of multiple studies (Gilbert & Asmus, 1981; Gfeller et. al., 1990; Frisque et. al., 1994), as Wilson and McCrary revealed that during the class discussions, many "participants expressed concerns that…they had been excluded from planning sessions for students placed in their classes" (p. 30).

Of particular concern in this data is the reluctance by instrumental music educators to incorporate these students into their performance-based classrooms. Moreover, some participants shared concerns of decreased performance quality and the presence of mainstreamed students negatively affecting other students in the class. The sentiments expressed by these participants are motivation for this dissertation. It is my intention that by providing instrumental music teachers with a description of the experience of mainstreamed students with hearing loss in an instrumental music setting, they will be less reluctant to incorporate students with hearing loss into their music classes.

Continuing the research agenda of music teacher perception of full inclusion, Darrow (1999) explored 35 informants' opinions through in-depth interview. The specific purposes of the study were to (a) examine music educators' perceptions regarding the practice of full inclusion, (b) conduct a descriptive analysis of their perceptions, and (c) compare and contrast choral, instrumental, and general music educators' perceptions regarding the practice of inclusion.

Participants were part of a Midwestern school district that had encouraged full inclusion of its students with disabilities for three years. The 35 subjects represented general music (17 teachers), choral music (five teachers), and instrumental music (13 teachers), 25 of whom were female and ten of whom were male. The range of experience for the subject pool was two years to 31 years.

When answering the question regarding the critical issues related to inclusion, 13 issues arose. The four most important were (a) the need for collaboration or consultation with special educators, music therapists, or others knowledgeable about students with disabilities (75% of participants), (b) a need for more information about the students

included in their music classroom (60% of participants), (c) the amount of time required to successfully include students with a disability (50% of participants), and (d) managing the varied abilities in the inclusive classroom (40%). Specific to instrumental music teachers, 46% believed performance expectations as a critical issue, along with 54% seeing adaptation of materials as important.

Responses to the second question, seeking to uncover how the inclusion of students with disabilities had affected teaching methodology, were grouped into seven categories: modifications, individual instruction, multiple approaches, paraprofessionals, peer partners, class size, and pacing. Of the seven categories in question, the use or training of paraprofessionals and peer partners in a teaching capacity were the adaptations most frequently used. Additionally, 40% of respondents provide individual instruction and modify the curriculum or materials for students with disability.

Of the answers to the third question about how inclusion affected students with and without disabilities, respondents were positive about the effect of inclusion on both groups. However, more positive comments were made in reference to the benefit of non-disabled students than for the disabled population. Further, more comments (14) were made about the negative impact of inclusion on students without disability than about the negative impact on students with disability (2).

The final research question asked participants for advice on how to assist new teachers in teaching inclusive classrooms. Two ideas were prevalent; 48% of subjects suggested new teachers ask for help and information, and 28% recommended including the student in the process.

Contrary to previous studies, hearing loss was not one of the more frequent

disabilities mentioned by music teachers as challenging to include. Perhaps this is indicative of music teachers' increased comfort in teaching students with hearing loss, or rather, evidence that contact with this disability is less frequent, especially in comparison to more prevalent disabilities, such as emotional/behavioral disorders.

A theme found in this study and significant to this dissertation, was that music teachers perceived students with disability "fit in" to the social group within their music class. Is this true of students with hearing loss in an instrumental music setting? It was my intent to investigate that question in this dissertation study.

Scott, Jellison, Chappell, & Standridge (2007) utilized interviews with music teachers to answer these four research questions: (a) What do teachers perceive to be their level of involvement in the placement process and their access to resources and support? (b) What do teachers perceive to be their degree of involvement with parents and what do they report having learned from parents? (c) What do teachers perceive to be the effects of inclusion on students with disabilities, on students without disabilities, and on themselves in school and outside of school? and (d) What do teachers consider to be the most important advice for others who are teaching in inclusive music classrooms?

The convenience sample of 43 total music teachers (16 elementary music, 15 secondary orchestra, and 12 secondary band) were selected because of their experience in teaching an inclusive classroom. Twenty-two participants came from a large school district in Texas, while the remainder were employed in Midwestern and Eastern school districts. The range of teaching experience for participants was three to 36 years, with a mean of 13.2 years. Interestingly, choral teachers who had inclusive classrooms were difficult to identify, resulting in only three interviewed. Their data was not included in the study.

In addition to the narrative data, the interviewers rated observed emotion in the teachers' responses to questions through a rating scale. Results to the first question regarding teachers perception of their level of involvement in the placement process, indicate that teachers by and large receive information regarding placement (elementary music teachers = 87%; orchestra = 63%; band = 66%). An increase in comparison to previous data on music teacher participation in IEPs, Scott et al. (2007) found that over half of orchestra (87%) and band (58%) teachers participated, while only 38% of elementary music teachers participated in IEP meetings. Most often, participation was a result of invitation by the student's special education teacher.

The third research question, which focused on teacher's perception of the effect of inclusion on disabled and non-disabled students, resulted in largely positive experiences for students with disabilities and their typically abled peers. Outcomes were rated as positive and highly positive, with teachers often reporting students with disabilities being able to do more than expected. It is unique to note that a substantial disparity among band teachers was recorded, as 63% of band teachers expressed positive comments on the effects of the inclusion experience on themselves, while 82% expressed positive comments on the effects of the inclusion experience outside of school. This might be interpreted as band teachers viewing the benefit of inclusion for the whole child while still having some apprehension of their inclusion within the band program. Conversely, 87% of orchestra teachers expressed positive comments about the effect of inclusion on the themselves, while only 71% shared the same positivity about its effect on the school. Obviously, both ratings from the two populations demonstrate high positivity, yet the discrepancy merits further investigation.

While direct comparisons of this study to previous investigations of teacher perceptions would be inappropriate due to the heterogeneity of methodology and research questions, this study does seem to challenge results previously encountered in music education research. First, the generally positive sentiments each subgroup reported in their interviews, including the topics of the effect of inclusion on the 'typical' students, the sense of professional/paraprofessional support, and the collaboration with parents (especially within the band subgroup), were in contrast to much of the previous research that reflected a hesitancy on the part of music teachers to include students, especially at the secondary level . Secondly, the increase in IEP participation, reported as low as 13% in previous studies (Frisque et al. 1994), were substantially higher in this study, as evidenced by 87% of the respondent orchestra teachers participating in IEPs. These results may indicate a shift in perception to one that values, to a greater degree, the inclusion and mainstreaming of students with disabilities.

Kaiser and Johnson (2000) explored the effect of an interactive experience on music majors' perceptions of music for deaf students—specifically, how prepared, comfortable, and willing they felt to work with deaf students.

After giving a one-hour concert for ten deaf students between six and seven years old, 23 members of a college brass ensemble completed a questionnaire soliciting their responses to areas of preparedness, comfort, willingness and general questions about working with deaf children. Three domains resulted in these beliefs from participants: (a) music could be used in the education of deaf students, (b) they would be willing to provide music experiences for deaf students, and (c) they would be comfortable working with deaf students.

The researchers assessed the interactive experience by comparing pre-test results to post-test data. Across all four domains, scores increased. Significant gains were found in regard to subjects' positive feelings about music being used in the education of deaf students and in their sense of preparation to work with this population. At the end of the post-test, an invitation for "general comments regarding" subjects' feelings about the experience was inserted. The comments were overwhelmingly positive, citing the experience as "rewarding and enjoyable." The second most frequent category of comments related to subjects' sense of growth in their general knowledge of deafness and perceptions about the role of music in teaching deaf students. Of particular interest was the third most frequent category of comments, which were empathetic statements, relating to the disability of deafness and music experiences.

Gfeller, Darrow, and Hedden (1990) took the question of music teacher perception of mainstreaming effectiveness to the Midwestern states of Iowa and Kansas; however, these researchers were specifically interested in the effectiveness of meeting the true spirit of IDEA: "the exposure of handicapped students to 'normal' educational opportunities" (p. 91). The research questions included six domains: (a) differences among teachers' perceptions according to specialty (general, choral, or instrumental), (b) differences among music teachers according to level of experience with disabled students, (c) amount of pre-service preparation in special education available to music teachers in Iowa and Kansas, (d) support available to music teachers serving disabled students, (e) the extent to which a positive correlation exists between amount of support for mainstreaming and teachers' perceived success in mainstream settings, and (f) teachers' perceptions about the most and least difficult disability groups to mainstream.

A stratified random sample of elementary and secondary music educators (N=350) were surveyed. Iowan respondents reported 41.5% involvement in mainstreaming handicapped students, while there was a 58.5% response rate among Kansas music teachers. Due to the two states' homogeny of demographics, the two participant pools were combined.

The results offer some important findings. First, the average music educator receives little to no training or coursework in working with mainstreamed students. Second, and corroborating Atterbury's (1986) findings, teachers have very little input into the placement of students with disability, as only 13% of respondents participate in IEP meetings. Third, a slight correlation between perceived success in mainstreaming and amount of instructional support was observed. Last, and most importantly to this dissertation, is the finding that revealed which disabilities teachers found most difficult to support in mainstreaming. Next to behavioral or emotional handicap, hearing impairment was the most difficult disability to mainstream, with 40% of music educators acknowledging this sentiment. Teachers were asked to respond only if they had direct experience working with the specific handicap. Fortunately, it is apparent that students with hearing loss are participating in music, as 40% of teachers in this study have had experience teaching students with hearing loss in their classes.

Adapting Gilbert and Asmus (1981), Atterbury (1986) focused on the perceptions of mainstreaming from general music educators in a 16-item questionnaire whose subjects were from the southern division of the Music Educators National Conference (MENC). The results indicate favorable teacher perception of disabled students' enjoyment of music class, with 86% of teachers indicating a moderately good or highly satisfactory experience

for their students with disability. In items focused on instructional adaptation, 43% of teachers marked that they provide low levels of adjustment for their students with disability, while 51% provide moderate adjustment. The glaringly negative response came to the questions focused on administrative support, where 76% of teachers indicated a low rating.

It seems from the results garnered by Atterbury (1986) that general music teachers believe that students with disability enjoy their music classes. However, similarly to Gilbert and Asmus (1981), they feel ill-supported to teach this population. Also of note are the satisfactory experiences that students are perceived to have as a function of moderate-to-low adaptation from teachers' instruction. Ripe for further analysis would be a qualitative investigation of the parameters that these general music teachers consider moderate or low adjustment.

Teacher Participation in IEP's. Atterbury's (1986) findings, teachers have very little input into the placement of students with disability, as only 13% of respondents participate in IEP meetings Similar to Gilbert and Asmus (1981) and Gfeller et al. (1990), Frisque, Niebur, and Humphrey (1994) 72% of music teachers indicated "rarely" or "never" participating in the placement process of a student with disability.

Respondents' rate of involvement in the IEP process was generally less than reported in Scott et al. (2007), yet greater than studies in the early 1990s (Gfeller et al., 1990; Frisque et al.,1994). Almost 56% reported that their suggestions had never been solicited for students IEPs, while 43.5% had never been invited to attend an IEP meeting. When teachers had been invited, almost 65% did so on occasion, and only 53.8% reported typically receiving a copy of students' IEP documents. Of those that received copies, 40.2%

typically understood them. When comparing content areas, the general/choral teachers indicated a significantly higher level of involvement in the IEP process than instrumental music teachers.

Summary

Of all the mediums within music, instrumental music teachers and students seem to be behind the curve in perception and inclusion of students with disabilities. Instrumental music students in Johnson and Darrow (1997) were chosen because they had been previously identified as being perceived as the most challenging arena of music education to include students with disabilities (Atterbury, 1986; Gfeller et al., 1990). Frisque, Niebur, and Humphrey (1994) found of the 6% of teachers who had not taught a student with disability, the largest subgroup was instrumental music educators. Gfeller, Darrow, and Hedden (1990) found that next to behavioral or emotional handicap, hearing impairment was the most difficult disability to mainstream, with 40% of music educators acknowledging this sentiment. Lastly, in reference to the primary reasons for mainstreaming students with disability, instrumental music educators listed that the interest of the student was the primary reason for their mainstreaming. This may be interpreted that students with disability are interested in instrumental music. No other medium of music education (chorus, general music, strings, or combination) garnered that level of interest from students with disability.

Teachers' perception of difficulty in working with students with hearing loss, coupled with the interest in instrumental music that students with disability demonstrate make the topic of this dissertation especially timely. It was the intent of this dissertation to provide instrumental music educators with information about the experiences of students

with hearing loss in instrumental music for the purpose of decreasing the perception of difficult and helping more students with disabilities to act on their interest in instrumental music.

Experiences of Students with Disabilities in Instrumental Music

The vast majority of studies solicited data through questionnaire or survey (Darrow, 1987; Frisque, et al., 1994; Gfeller et al., 1990; Hahn, 2010 Hammel, 2001). Only recently have a few studies utilized methodologies resulting in rich description (Lapka, 2005; Moss, 2009) as is the intent of this dissertation. Moss (2009) is the only document whose intent was to describe students' own experiences. No study has investigated the experiences of students with hearing loss in music education.

The dissertations of Moss (2009) and Lapka (2005) are investigations into issues of mainstreamed students with special needs and instrumental music through rich description. Moss (2009) interviewed students with vision loss to describe their experiences in instrumental music, while Lapka (2005) pursued a case study of the integration of students with disabilities in a secondary instrumental music ensemble.

The case study subjects in Lapka's (2005) study included 29 students in the band along with eight students with disabilities participating in the band. The high school band on which the researcher focused was in the rural Midwest and was part of a school whose total enrollment was 243 students. Fourteen of the band's 29 members were classified as disabled. Five of the 14 students were learning disabled, while the other eight were part of the "advantage" class—a class for students with mental disabilities. The "advantage" students, whose academic abilities were around the 2nd/3rd grade level, all played percussion instruments in the school's band.

The questions that guided the inquiry were: (a) How was the process of integration initiated? (b) How was the process implemented? (c) How was the process sustained? and (d) To what degree have the students with disabilities established relationships with their peers? Data was gathered through interviews with faculty, staff, students, and parents, as well as through rehearsal observations.

Over a three-month period, the researcher held focus group interviews with faculty, students, and parents. Focus group interviews with small groups of students grouped by instrument section (woodwind, brass, percussion) lasted between 25 and 50 minutes. Because the advantage students were all in the percussion section, the researcher combined brass and percussion students so as not to attract undue attention to them as a separate group.

The topics that the researcher posed through interview questions included: methods of instruction; "advantage" class involvement in the band; social contact with students from the "advantage" class; and perceived influences.

Content analysis of the interviews revealed these ten themes: (a) initiate, (b) collaborate and communicate, (c) respect/value special education teacher, (d) respect/value band director, (e) adaptations and accommodations, (f) attitudes and values, (g) discipline, (h) socialization, (i) student learning, and (j) teaching methods/instruction.

Findings relevant to the first research question of how the inclusion was initiated reflected the mutual interest in inclusion by both the band teacher and special education teacher. The band teacher began informal communication from the perceived need to increase the number of percussionists in the band and the special education teacher reciprocated the interest out of a desire to find inclusionary opportunities for the students

in the "advantage" class. The researcher also uncovered themes of administrative support, communication, and positive teacher attitudes.

Themes that arose pertinent to the question of how inclusion was implemented were categorized into eight areas: (a) flexibility, (b) communication, (c) collaboration, (d) instruction, (e) curriculum modifications, (f) instructional accommodations, (g) time, and (h) assessment. Communication occurred primarily informally, such as at lunch or between periods. In regards to time, the special education teacher called the integration process "morphing," where over the span of three years, more frequent and greater numbers of students with disability were integrated. Additionally, both teachers had time to plan together, ensuring a smooth process and instilling a sense of collaboration. This situation seems to be unique, as several previous studies indicated a significant portion of music teachers not participating in IEPs or other planning sessions for students with disabilities. It does corroborate data which indicated music teachers tend to predominantly look for support from special education teachers.

Themes that arose through a focus on how the inclusion process was sustained were (a) teacher attitudes, (b) continued collaboration, (c) reflective teacher practices, (d) parent involvement, (e) parent/student attitudes, and (f) learning outcomes. Socialization experiences that facilitated self-esteem was the learning outcome that was most often cited. Students without disability also demonstrated an inclusive attitude where band members were like "family."

It is interesting to note that the band teacher in this study, while at a previous teaching post, had duties in the special education classroom. This finding corroborates the results of many other studies, which show an increase in positive perception of teaching

students with disabilities after positive experiences and subsequently increased willingness to teach. Additionally, the band teacher felt as if he had full control over the integration of the students with disability, unlike some music teachers who are not consulted about placement decisions (Darrow & Gfeller, 1991; Frisque, et al., 1994; Gfeller et al., 1990; Gilbert & Asmus, 1981; Wilson & McCrary, 1996).

Although the perspective of the student subjects who were part of the "advantage" class was not the sole focus of the investigation, interview data revealed that these students enjoyed playing instruments, favorite songs, and expressed that they wanted to be there. This sentiment echoes studies previously reviewed in this chapter that found students with disabilities demonstrate an affinity for instrumental music (Darrow & Gfeller, 1991; Frisque, et al., 1994).

Moss (2009) provides the only study found in my review of literature that sought to document the perspective of students with disability on their participation in instrumental music. Inspired by his own experiences as an instrumentalist with vision loss, his dissertation study, entitled *Quality of Experience in Mainstreaming and Full Inclusion of Blind and Visually Impaired High School Instrumental Music Students,* researched the following four questions: (a) How do the motivations for participation in instrumental music of blind and visually impaired students compare to what is known from research about sighted students' motivations for participation in these classes? (b) To what extent, if any, does the ability to develop their own strategies for learning affect the quality of secondary school blind or visually impaired students' experiences in instrumental music classes? (c) To what extent is the quality of secondary school blind or visually impaired students' experiences in instrumental music related to the intervention or assistance of

other people? (d) To what extent do blind or visually impaired secondary school students' perceptions of social connectedness determine the quality of their experiences in instrumental music classes?

The eleven blind or visually impaired study participants were high school students who were currently participating in band or orchestra. Subjects were gathered through contact with several national organizations that serve blind or visually impaired individuals. The demographics of the participants showed six to be in the 12th grade, one in 11th grade, one in 10th grade, and three in 9th grade. All but one participant played in band, and the lone orchestra member was a violinist. Fifty percent of the subjects played a brass instrument (tuba, trombone, euphonium, trumpet), two were percussionists, one played clarinet, and one played violin. All but two participants were male, and seven of the eleven participants were blind, with four categorized as having partial visual acuity.

Data was collected through two semi-structured phone interviews that typically combined for two hours of data collection. Phone interview was chosen as the mode of data collection due to proximity challenges and the researcher's intent to avoid the subjects' sense of being observed through a 'one way mirror.' The questions posed in the interviews addressed: (a) selected demographics, (b) how respondents came to play their instrument and participate in the school ensemble, (c) motivations for playing in the school band/orchestra, (d) strategies students use to learn music and participate in the band/orchestra, (e) the intervention of other people in the students' music learning, (f) if and how respondents engage in social functions outside of class with their sighted peers from the musical ensemble, and (g) informants' future plans in music.

The first research question focused on motivation for participation was answered

through five themes: (a) music-related motivations, (b) motivation for group membership, (c) motivation for personal accomplishment, (d) motivation for social interaction, and (e) motivation and identity development. Music-related motivation was undergirded by informants who relayed ideas such as playing and performing music, performing in concerts, and an interest in the musical process. Motivation for group membership is a theme taken from ideas that expressed group accomplishment, group status, and being part of a group. Motivation for personal accomplishment was a theme relating ideas such as the mastering of a particular section of music and achieving a respectable position. Motivation for social interaction grouped the ideas of connection with ensemble members and talking, while motivation and identity development themed ideas of students embracing musicianship and resisting disability. A main purpose for Moss's (2009) investigation of motivation within this population was to compare it to the existing literature on the motivation of non-disabled students. The results indicate that by and large motivations are very similar for typically seeing students and students with vision loss. One significant difference was the development of identity other than that of someone with a disability. While development of the musician's identity was not unique to students with vision loss, it was in its function—namely that participating in instrumental music enabled them to develop an identity other than that of disabled.

The second domain sought data regarding students' self-developed learning strategies. By asking the question, "What would you do if your teacher presented you with a new piece of music to learn?," two themes emerged from the interviews: strategies for learning ensemble parts and strategies for rehearsing and performing. Strategies for learning ensemble parts included ideas such as scanning for familiarity, guessing and

checking, low vision related adjustments, braille music, recording the ensemble, and sequencing learning. Strategies such as memorizing, attention to the beat, and refraining from playing were all grouped under the theme of strategies for rehearsing and performing. Those individuals with complete vision loss incorporated scanning for familiarity, guessing and checking, braille music, recording the ensemble, and sequencing learning. Guessing and checking was one informant's description of a process where they would listen intently to the person sitting next to them and mimic their playing, guessing what would come next, and then correcting if necessary. Low vision related adjustments were those strategies that participants with some vision remaining utilized. These included enlarging the music print and keeping the music stand (and music) close. Braille music was only used by two participants, seemingly due to the proactivity the music teacher must demonstrate to have typical parts transferred into Braille.

One informant reported that she often had the parts memorized before the part sent for Braille translation was returned for her use. Two informants often recorded the ensemble playing and used that as a model for rehearsing and memorizing their parts. Two others described a "sequenced" approach to learning the music, whereby they would learn one part of the song and build upon that until it was completely memorized.

The third construct inquired about the intervention of others in these students' instrumental music learning. Three groups of others emerged from the participant interviews; parents, private teachers, and other professionals all facilitated outside assistance with learning system, notation and instrument playing. The second 'other' group was the ensemble directors, where the view of the director as facilitator, advisor/coach, and recognizer of ability emerged. When positive perceptions of the

teacher as being understanding and accessible were present, participants described directors as being extremely supportive. Peers made up the final other group; comments indicated they assisted with notation, instrument, rehearsals, and performances. Participants commented on the assistance of peers to gauge the myriad of nonverbal cues, including performance protocol (when to stand, etc.), and aspects of marching band, such as guiding other members to maintain formation.

The final domain of social connectedness uncovered three themes that Moss categorized as: (a) young, intending professionals in music, (b) 'band is like a family,' and (c) 'I like playing music with my friends.' Moss collected interview data specific to this domain using the question, "Can you tell me about a time when you really felt a part of the band or orchestra?" Some informants relayed their sense of connectedness through performances and friendship, while some attributed their lack of connection to their disability. For students whose motivations were more musical, social connection was secondary. One student, for instance, seemed content with his peer relationships, but did not consider them as reasons for participation in band. Even for the two subjects who expressed difficulty in developing peer relationships, participation still continued. Interestingly, the same two individuals who did not have a sense of connectedness viewed their teacher as more unhelpful and not accommodating than the other subjects.

Implications from this Research

With the exception of Lapka (2005) and Moss (2009), music education research in the domain of disability and participation in music has employed questionnaire or survey data. This dissertation seeks to fill the gap of qualitative understanding in regards to specialized populations by studying the experiences of students with hearing loss in

instrumental music through incorporating the voice of the students themselves. Moss (2009) investigation is the most similar to this present study in terms of its purpose and methodology.

The MENC (1986) document, *The School Music Program: Description and Standards,* recommends that music educators be involved in the placement process of students with disabilities. This was rarely occurring (Frisque et al., 1994; Gfeller et al., 1990; Gilbert & Asmus, 1981) according to older research. However it seems there has been an increase in involvement with the IEP process more recently (Hahn, 2010; Scott, Jellison, Chappell, & Standridge, 2007). Due to the change in results outlined above, the involvement of music teachers in the IEP process is also addressed in this study.

Students with hearing loss are involved in mainstream music classes. According to Gilbert and Asmus (1981), Gfeller et al. (1990), and Frisque et al. (1994), between 32% and 40% of teachers in their respective participant groups were teaching students with hearing loss, while more recently Hahn (2010) indicated 51% were teaching this population. Students with hearing loss are present in instrumental education and yet they have been virtually unknown in the research literature. This study is an attempt to begin filling that gap in the research.

Studying the specific domain of instrumental music is warranted due to students with disabilities own interest in it, and the reluctance of music teachers to include these students in their classes. Students with disabilities are interested in instrumental music. Frisque et al. (1994) and Moss (2009) revealed that the most significant reason for a student's mainstreaming in instrumental music was his own interest. However,

instrumental music educators appear to be the most cautious when it comes to mainstreaming.

Both Wilson and McCrary (1996) and Frisque et al. (1994) present data that indicate instrumental teachers were the most likely, in comparison to other music mediums, to have not had any students with disabilities in their classes. Further, they were the most reluctant to work with these students in their performance ensembles.

Many music teachers have had little training to work with students with disabilities (Darrow & Johnson, 1997; Frisque et al., 1994; Gfeller et al., 1990; Hammel, 2001). It should be of no surprise then, that there seems to be hesitancy on behalf of teachers to work with students with hearing loss and other disabilities. However, interactive experiences with students with disabilities (including hearing loss) result in an increase of positive perception towards teaching these students (Kaiser & Johnson, 2000; Whipple, 2005). Similarly, non-disabled students' perception of students with disability improves with positive experiences (Colwell, 1998; Darrow & Johnson, 1994; Johnson & Darrow, 1997). The student's own interest in the medium of instrumental music, along with the propensity for students with disabilities to not be included in instrumental music are rationale for focusing on this specific area within the larger whole of music education.

This dissertation, therefore, was intended to investigate students with hearing loss experiences for the sake of providing an in depth knowing to interested stake holders. By understanding Angela and Justin's experiences through case study methodology, researchers, teachers, typically hearing students and students with hearing loss will have a more accurate understanding of their motivations for continued participation, sense of social connection, and the accommodations and learning strategies in place in this context.

CHAPTER 3: METHODOLOGY

Introduction

The purpose of this study was to explore the experiences of two students with hearing loss participating in instrumental music. Four orienting questions guided the inquiry:

1. What factors contribute to these students' motivation to continue participating in instrumental music?
2. How is hearing loss affecting each student's music participation and what strategies are accommodating for their hearing loss?
3. How are students with hearing loss experiencing inclusion in the secondary instrumental classroom?
4. What can school music teachers learn from the experiences of these students?

Studying hearing loss and music, particularly *children* with hearing loss in music, is a challenging endeavor for many reasons. Gfeller (1992) suggests the heterogenous nature of exceptional learners makes design issues particularly problematic. Mitchell & Karchmer (2006) and Fortnum et. al., (2007) identify further challenges to research with this population including, the increasing dispersion of deaf and hard of hearing children in local schools as opposed to special schools or centers, the etiology of hearing loss, the timing of identification and intervention, the broad range of language and learning experience, and the presence of additional disabilities. It was evident based on the aforementioned issues that the methodology most suited for students with hearing loss in this investigation

should come from a qualitative paradigm because "traditional group based research and evaluation is particularly difficult with this population" (Spencer & Marschark, 2010, p. 12).

Qualitative research developed out of the constructivist notion, which emphasizes the experience of social and cultural worlds, as well as their interpretation and understanding within a context bound by time (Lincoln & Guba, 1985, 2000; Schwandt, 2000). Stake (1995) explains the focus of qualitative research as "not necessarily to map and conquer the world but to sophisticate the beholding of it" (p. 43) and facilitate the understanding of the particular (Bresler & Stake, 1992). It is especially "ideal for exploring complex phenomena about which there is little knowledge" (Krathwohl, 2009, p. 236).

Within the qualitative approach, case study was chosen as the best methodology for this research project because of its flexibility in dealing with the uniqueness of the individual cases as the above researchers mentioned. Case study is the focus on a phenomenon through *rich* or *thick* description and analysis while set in context of place and time (Creswell, 1998; Geertz, 1973; Merriam, 1998; Merriam & Associates, 2002; Miles & Huberman, 1994; Stake, 2001, Yin, 2009). Yin (2003) posits that case study is a preferred methodology when "the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real life context" (p. 1). Stake (2006) corroborates that "case study was developed to study the experience of real cases operating in real situations." Case study is especially appropriate in studying the experiences of students with hearing loss in instrumental music due to the small population of students who have hearing loss and the even smaller population who are learning instrumental music.

Institutional Review Board Application

After completion of the literature review and determining qualitative case study as the preferred methodology, the orienting research questions were developed. Permission to collect data was obtained from the University of Illinois College of Education Human Subject Committee. The appropriate forms were filed requesting IRB Exempt status as the data collection was to take place during regular school hours and included no more risk than common for their day to day activity.

The IRB application was completed and underwent several drafts, particularly for the assent of non-focal students in the classes being observed. Parents of non-focal students in the classes observed were provided a letter indicating I would be observing in their class taking notes. In an effort to protect the identity and thereby decrease the risk of the study, no indication was given in the letter of my specific purpose to observe students with hearing loss. Principals at both schools were provided with copies of all IRB documents they requested.

IRB Exempt status was granted on March 15th, 2012 via email from Dr. Anne Robertson of the University of Illinois College of Education Human Subject Committee. The formal letter indicating IRB exemption was issued March 20th, 2012 (see appendix A).

Selecting participants

The criteria for subjects' participation in this research project were: (a) the individual must have hearing loss; (b) the individual must be currently enrolled in a secondary school instrumental music class; and (c) the individual must be within proximity to allow for observation.

Purposeful sampling was used to identify individuals with hearing loss currently enrolled in secondary instrumental music classes. Heterogenous purposeful sampling, or maximum variation sampling, especially within a small population, provides some assurance for a representation of variations within the population (Lincoln & Guba, 1985; Maxwell, 2005).

Potential participants were garnered through three means. First, instrumental music directors were asked, through an email to a 1,500-member instrumental music teacher organization, if there was a student with hearing loss enrolled in their classes. Secondly, with the assistance of medical professionals at a large, privately funded research institute who provide services for a significant number of individuals with hearing loss, a list of patients who met the criteria were assembled and contacted, and lastly, snowball sampling from the potential participants gathered through the first two means and by those familiar with the study (Babbie, 1995; Crabtree & Miller, 1992). A total of nine individuals were identified that met the criteria of having hearing loss and involved with instrumental music, however only two individuals met the second and third criterion of currently being enrolled and within proximity to engage in observation of their participation in their music class. The majority of individuals who did not meet the criteria had already graduated from high school.

As noted above, studying children with hearing loss is a difficult endeavor due to their heterogeneity within many domains. Further exacerbating the issue is the miniscule population of students with hearing loss currently participating in instrumental music. These two students, however, provide compelling examples of students with hearing loss in instrumental music due to the diversity of gender, etiology, technological assistance,

schooling (one high school, one middle school), and sub section of instrumental music (strings and winds).

In this multiple case study, two individuals were the focus: Angela, an 8th grader with bilateral cochlear implants playing violin, and Justin, a 9th grader with bilateral hearing aids playing trombone.

I solicited the individuals who connected Angela and Justin to the study (Angela's audiologist and Justin's music teacher) to informally inquire if they would want to take part in the study. Upon the granting of exempt status by the Institutional Review Board, I asked the connecting individual to give the students' parents my phone number or email to reach me about formal participation. Via email, I organized a meeting time with the parent(s) to sign IRB documents. I met Angela's parents at their house and Justin and his mother at the restaurant she owns and manages.

Researcher Context and Access to subjects

Hughes (1971) advises that a person, who is of a culture but feels not wholly a part of it, has the capacity to be a good observer of that culture. I have had almost 25 years of experience as a student of instrumental music and teacher/conductor within the instrumental music culture. My four-year-old son Cole is deaf and I have subsequently been through the personal experience of hearing loss, choosing technological assistance, an education aimed towards an inclusive setting, and many of the Psycho-social effects associated with navigating Cole's hearing challenges.

The personal connection to this topic provided a foundation with which to build relationship with participants and their families. For instance, in my first meeting with Angela's family at their home to sign IRB forms and discuss an interview schedule, Cole

accompanied me. While taking care of the formality of IRB forms, even with an almost decade age difference, Cole and Angela were able to show one another their cochlear implants and make small talk the way one would expect a four-year-old boy and pre-teen girl to do. In this first meeting we scheduled the interview with Angela's parents and the first two interviews with Angela herself. Upon leaving that meeting, Angela's family gave Cole a candy bar. He wanted to go back.

In my initial interviews with Justin and his mother, Cole was not with me. However, in introducing myself and speaking to the purposes of this research I described Cole's story, how we came to know of his deafness, and the personal motivations as a father I have in understanding Justin's experiences and showed them pictures of Cole. I believe this helped set them both at ease as we moved closer to a relationship built on common experiences rather than one framed as researcher and subject or interviewer and interviewee.

Similarly, relationships with the school music teachers were built on common experiences of teaching and conducting in an instrumental music context. Common connections, vocabulary, and the ability to *talk shop* with the instrumental music teachers positioned me closer to peer than authority and created a comfortable relationship in interviews and observations. My previous experience in the unique cultures of instrumental music and deafness, may have afforded me, as Hughes (1971) described, to be a good observer of these cases.

Data Sources

The methods for uncovering data within this multi-case study were borrowed from ethnographic methodologies including interview, observation and documents (Stake, 1995,

2006; Yin, 2003; Wolcott, 1997). Documents analyzed in this study included audiograms, Individual Education Plans, repertoire performed, and student projects.

Case studies are multi-perspectival analyses—the first perspective being my own. Gaining a perspective on the experience of students with hearing loss in instrumental music requires my own immersion in their context. This was accomplished through interviews and observations.

Non Participant Observation and Field Notes. The purpose of observation is a greater understanding of the case through immersion in their social and physical proximity (Emerson, Fretz, & Shaw, 1995; Stake, 1995). Through immersion researchers "experience… both ordinary routines and conditions under which people conduct their lives… and to grasp what they experience as meaningful and important" (Emerson, Fretz, & Shaw, 1995, pg. 1). Additionally, immersion gives the researcher opportunity to "see how they respond to events as they happen and (experience) for oneself the circumstances that give rise to them" (Emerson, Fretz, & Shaw, 1995, pg. 2).

Observations of Angela and Justin occurred predominantly in their school music class and in a smaller environment. During these observations I sat within visual proximity of the participant (See appendix B and C for location in the rehearsals) and recorded the experiences and events with jottings in a Microsoft Word document on an Apple laptop that was held on my lap. Typically the jottings were converted to field notes within three hours of the observation. The observations were essential in providing description of the musical context in which the participants were involved, observing accommodative techniques, and scrutinizing the social milieu these students find themselves.

Documents. Documents retrieved during data collection included examples of sheet music from music class and other documents that assist in describing the participant's musical activities. Analysis of these documents supported conclusions drawn from data garnered through observation and interview. Examples of these documents can be found in the appendix.

Interview. "The most meaningful data-gathering methods are often observational—both direct observation and learning from the observation of others (Stake, 2006, p. 4)." The others in this investigation included the students, their parent(s) and their instrumental music teachers. Learning from their observations occurred by way of semi-structured interviews.

Semi-structured interviews were guided conversations that directed the participant to describe the experiences on which the research questions focus. Perhaps more like improvisation than a score-centered musical experience, these interviews had an element of fluidity to them (Rubin & Rubin, 1995). At the start of each interview I reminded the participant of the IRB agreement and their right to not answer any question or to withdraw at any time from the study with no penalty. Further, I made it a point to remind each participant that they were the experts on their experiences and any detail they believe to be important was important.

Stake (2006) indicates, an "interview should be less about the interviewee than about the case" (p. 31). I took care to craft questions that focused on the four orienting issues while being alert to new or unexpected data that the participants volunteered. This was particularly important as Angela was a wonderfully talkative eighth grader who often

volunteered a significant amount of data. Maintaining the focus of the interview was essential to gathering meaningful data.

Referenced more completely in the literature review, Moss (2009) investigated the experiences of secondary instrumentalists with vision loss. The research questions of that study have similar foci to this one, including, motivation, social connectedness and learning strategies. While the research questions I pose are formatted for case study research, one can see the aims of Moss (2009) study have influenced the orienting questions in the present study. I believe the similarity is further evidence of a common interest among researchers and educator's regarding motivation, social connectedness and accommodations of specialized populations. Although not replication in the positivistic sense of recreating the entire study, some interview questions from Moss's (2009) structured phone interviews were utilized in the present study.

Below is a chart illustrating the similarities in the two studies foci.

Moss (2009)	**Burdett**
(a) How do the motivations for participation in instrumental music of blind and visually impaired students compare to what is known from research about sighted students' motivations for participation in these classes?	1. What factors contribute to these students' motivation to continue participating in instrumental music?
(b) To what extent, if any, does the ability to develop their own strategies for learning affect the quality of secondary school blind or visually impaired students' experiences in instrumental music classes? (c) To what extent is the quality of secondary school blind or visually impaired students' experiences in instrumental music related to the intervention or assistance of other people?	2. How is hearing loss affecting each student's music participation and what strategies are accommodating for their hearing loss?

(d) To what extent do blind or visually impaired secondary school students' perceptions of social connectedness determine the quality of their experiences in instrumental music classes?	3. How are students with HL experiencing inclusion in the secondary inst. classroom?

Face-to-face interviews were the mode of interviewing utilized. Typically, face-to-face interviews are preferred when social cues are important to the research objective, the interviewer has the time and resources to accomplish the task, interviewees are within reasonable geographic distance of the interviewer, and standardization of the interview is important (Opdenakker, 2006). The most significant reason for face-to-face interviews in this research project was due to the needs of the interviewed—in these cases, the individuals with hearing loss. Many individuals with hearing loss use visual input through reading lips to clarify the aural input they receive in speech communication. Subsequently, in-person interviews provided the venue for aural *and* visual input to provide maximum opportunity for clarity.

The content of the interviews had been prearranged to address the four orienting questions. However, additions to interviews was common place as questions that surfaced during observations were added to the upcoming interviews as well as clarifying questions if there were conflicting data from other interviewees. The clarifying questions also served as accountability for my own subjectivity and interpretations. This process of triangulation sought to gather the perceptions of multiple stakeholders in an effort to draw out the most trustworthy data.

Interviews were audio recorded simultaneously on two separate devices. The primary recording device was a Zoom H2 recorder, with the secondary being recorded to a

file using the GarageBand application on an Apple laptop. Threats to the research in the form of malfunctioning equipment necessitated the use of two simultaneous recording formats (Easton, McComish and Greenberg, 2000). All audio data was password protected per the IRB agreement.

Following the interviews, the audio file was transcribed to text on a Microsoft Word document. I attempted to use a speechwriting application, but found the results to be unacceptably inaccurate and discontinued its use, instead transcribing the interviews by hand. I followed transcribed document guidelines set forth in McLellan, MacQueen and Neidig (2003) which gave suggestions for the formatting and labeling of the transcript. After interviews were transcribed, interviewees were provided with a transcript of the interview which they checked for errors and additions (Krathwohl, 2009).

Data Collection Timeline and Content

Figure 3 and figure 4, on the following page, show four pieces of information relating to the timeline and content of data collection in both cases; the date of the data collection, the type of data collecting session, the form of data the session provided, and the duration of the data collection session. I adhered to Seidman's (1991) three interview suggestion which posits that when interviewing the same individual more than once to do so within a week of the previous interview.

Figure 3.

Angela			
Interviews	Date	Data type	Duration
Parents	3/11/2012	Interview Transcript	60 min.
Angela	3/15/2012	Interview Transcript	60 min.
Angela	3/18/2012	Interview Transcript	80 min.
Angela	3/24/2012	Interview Transcript	90 min.
Teacher	3/27/2012	Interview Transcript	70 min.

Observations	Date	Data type	Duration
Full Orchestra	3/22/2012	Field Notes	60 min.
Full Orchestra	3/26/2012	Field Notes	90 min.
Full Orchestra	3/28/2012	Field Notes	90 min.
Full Orchestra	3/30/2012	Field Notes	60 min.
Private Lesson	3/30/2012	Field Notes	60 min.

Figure 4.

Justin			
Interviews	Date	Data type	Duration
Justin's mother	4/21/2012	Interview Transcript	30 min.
Justin	4/14/2012	Interview Transcript	75 min.
Justin	4/21/2012	Interview Transcript	45 min.
Justin	4/27/2012	Interview Transcript	60 min.
Music Teacher #1	4/23/2012	Interview Transcript	60 min.
Music Teacher #2	4/25/2012	Interview Transcript	60 min.

Observations	Date	Data type	Duration
Full Rehearsal	4/17/2012	Field Notes	60 min.
Full Rehearsal	4/22/2012	Field Notes	60 min.
Brass Sectional	4/25/2012	Field Notes	105 min.
Full Rehearsal	4/27/2012	Field Notes	60 min.
Full Rehearsal	4/30/2012	Field Notes	60 min.

The data sources included field notes in large ensemble rehearsals such as concert band and string orchestra, and smaller sessions such as private lessons and sectionals.

Data sources also included three interviews with the principal informants and interviews with other adults associated with the student, their parent(s) and their music teacher(s). Interviews and observations were typically around 60 minutes in duration while some observations, due to a block schedule, lasted longer.

Data collection occurred during the months of March and April 2012. An advantage to the intensity of data collection and analysis within the short time frame was the focused concentration on data and the ability to seek different perspectives from the participants quickly. I believe this led to clarity sooner as participants were able to provide input soon after an issue arose. Moreover, attending to issues raised by participants in their interviews was achieved in observations—often the very next day. For instance, in an interview, Angela reported that a student in her orchestra told her "I don't like deaf people." Knowing that the student had expressed this informed the way in which I observed their interaction during observations.

Further, during the transcription process I would maintain two open documents. One document was reserved for indications of personal bias or reaction to the data. The purpose of the second document was to write questions that arose from the data while in process of transcribing interviews or creating field notes out of the jottings. These questions were then assimilated into the interview schedule with the appropriate participant. This enabled the interviews to be reactive to data as it was encountered in interviews and in the field.

Combining the duration of interviews and observations, approximately 24 hours was spent in the process of data collection. Total time spent transcribing each interview (typically 3-4 hours per one hour interview) and converting field jottings to field notes

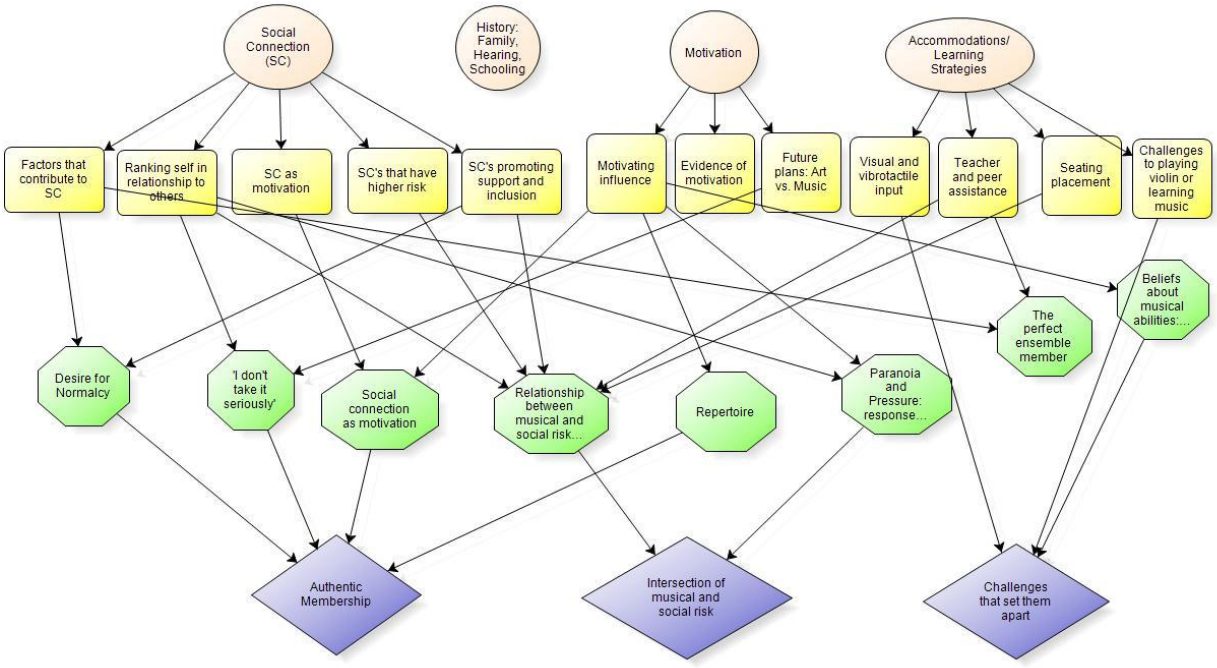
(typically 1-2 hours per observation) was conservatively 60 hours. As is typical of a qualitative study, analysis was at some level occurring in conjunction with data collection. However, time fully devoted to analysis after transcriptions and field notes were uploaded to *NVivo 9* software was conservatively 25 hours.

Analysis

There ought to be reluctance on the part of qualitative researchers to embrace a cookbook approach to interview data analysis (Miles & Huberman, 1994; Patton, 2002; Stake, 2005). Many suggest that the researcher be sensitive to the phenomenon and that the analytic method will arise out of that responsiveness (Stake, 1995; Miles & Huberman, 1994). All interviewees were sent their transcript for member checking and field notes from Angela and Justin's ensemble participation were examined by their teacher during their interview. Further, I brought many results from Angela and Justin's interviews to their teachers and vice versa in to corroborate and refute perspectives that arose. Angela's interviews were also reviewed by her parents. Due to a self-ascribed language barrier, Justin's mother declined to review his interviews. Following the conferral of the appropriate individual, qualitative data was entered into the qualitative data analysis software *NVivo 9*. Once in *NVivo*, text could be digitally coded.

Coding each case occurred in two phases followed by a third phase that incorporated analysis between the cases. The coding process in this study was similar to the three to four step processes prescribed by Hahn (2008) and Saldana (2009). The first was a 'face value' coding, represented by squares in the following figure (Figure 5). Here, data from field notes and interview transcripts were coded and grouped according to the orienting questions.

Figure 5. Example of Data Record and Findings Maturing to Themes



The second phase unfolded as the demarcation between the three domains seemed less and less clear. For instance, an entity that played a role within Angela or Justin's sense of social connection simultaneously functioned as an accommodative agent. Themes represented in the octagons in the figure, above come from Angela's case and demonstrate the refinement and reorganization that took place in the second phase. Analysis tools within *NVivo 9* provided strategies for data analysis in the first two phases, including, word frequency queries and text search with a variety of specificity from exact word matches to similar words.

Represented in Figure 5 within the diamonds, the third phase of analysis was a result of attempting to make sense of the themes of the second phase in relationship to one another, within each case and through the two cases. This is where the notion of authentic

membership began to arise as a large theme. The second of the large themes, the intersection of musical and social risk, was a version of a coded group that can be traced back to the first phase. The strength of its data, as evidenced by its quantity of connections to first level themes, led me to carry it through to the third phase as a larger theme itself.

The third of the larger themes (challenges that set them apart) was a response to a number of first level codes that did not particularly fit in the other two larger themes, but did provide data to one of the orienting questions: How is hearing loss affecting each student's experience?

The first, second and third phase findings and themes act as a data record which are apparent through chapters four through six. Many of the first and second phase findings are found in chapter four and five of this document, while chapter six has been reserved for the three larger themes.

After the first and second phases of analysis, I compiled a report to the dissertation committee informing them of progress and findings up that point. Throughout the three stages of analysis, I was in contact with my dissertation advisor to present themes and provide evidence of those themes. She also sifted through the data to offer analysis and interpretation that either confirmed or initiated a redirection in my own analysis and interpretation.

Bias and Limitations

Bias was accounted for predominantly through a log included in the field notes and in a separate document maintained while transcribing interviews and field notes. As I became aware of personal reactions, I included them in the right margins of the same field note document. I decided to include them on the same document so that I could revisit

them later as I converted the field jottings to field notes. They were helpful in reminding me of key moments as well as provided me buoys of key experiences, allowing for more descriptive field notes. Further, I was able to look for trends in my personal reactions.

A possible critique of the methodology presented here might be the time in the field with each individual case. However, Seidman's (1991) suggestion of a three-interview schedule with the principal informant was adhered to. In addition to the full interviews with other participants, contact outside of their scheduled interview (such as at observations or interviews with a family member) provided ample opportunity to clarify perceptions as needed and reach a point of saturation. Further, while participants were within driving distance, the inherent limitations of travel time and traffic in a major metropolitan area, coupled with the school schedules of the ensemble classes, was a barrier to daily observation. However, redundancies in the field notes and interview transcripts supported my sense that further data collection would not yield new information.

CHAPTER 4: ANGELA

The purpose of this study was to explore the experiences of two students with hearing loss participating in instrumental music, Angela and Justin. Initial interview questions, observations, and data analysis were focused on three factors likely to affect the quality of the students' musical experience: sense of social connection, use of accommodation and learning strategies, and motivation for continued participation. This chapter offers a description of Angela's musical life, and then interprets the extent to which each of the three factors played an important role in her experience as an instrumental music maker.

The findings for the first factor likely to affect the quality of Angela's musical experience, related to the domain of motivation, emerged three themes: (a) motivational influences: relationship and repertoire, (b) future plans: art vs. school music participation, and (c) dual musical identity: individual and group settings.

Results for the second factor likely to affect the quality of Angela's musical experience, accommodations and learning strategies, included (a) attention to visual and vibrotactile input, (b) private lessons preparing and reinforcing school music, (c) seating placement. (d) teacher and peer assistance, and (e) desire not to be favored.

Finally, the third factor likely to affect the quality of Angela's musical experience, her sense of social connection, were grouped into five themes: (a) factors that contribute to social connection, (b) social connection as motivation, (c) ranking self in relation to others, (d) social connections that are higher risk, and (e) positive social connections: catalysts for support and inclusion.

Context

Meet Angela the Student

Angela is a gregarious, expressive, and light-hearted thirteen-year-old. As an eighth grade student she is regarded by her parents to be an 'A' student, as well as a voracious reader whose strongest subjects are Language Arts and Social Studies. Angela has demonstrated an affinity for mythical plotlines such as Asian legends, Greek mythology and traditional literature. As such, she is somewhat atypical for her age in her reading choices as exhibited in one of our conversations:

> Angela: I was always a bit book nerdy, like always read a lot of books, and read books that no one really likes to read, because they're boring, and old- like classics, you know? I even read those all the time. . . all my friends were reading popular kids' series.(when) I was reading like *Little Women* and stuff. I do like fiction a lot- it's like my favorite type of book, well fantasy is even better, y'know?

Angela also demonstrates a competitive personality. When asked about the decision making process in choosing a certain curricular path in high school she responded, "My brother did it, he got through, so darn it. Now, I have to beat him."

She also reveals a penchant for choosing the difficult option when given a choice, and attaches importance to perseverance, as exhibited in the following dialogue.

> John: Why did you choose violin?
>
> Angela: I don't know why but I think I said I wanted to play violin because it seemed harder.
>
> John: You wanted to play something harder? Are you that kind of student where you like to do things that are harder?

Angela: Well, it depends on what it is. If it's something I'm good at or something I've never done before, I guess most of the time I'll do harder.

John: Why is music important to you?

Angela: Well, I really like music but not super, super, super important to me and then like — this is kind of hard question.

John: It is. It is a hard question, I know.

Angela: Like I don't—I like to play music. I like to play violin. And I like to stick with things I start.

John: Uh-huh

Angela: So I started music, it makes me want to stick to it. So on and so forth. And I like orchestra too.

John: So you're the kind of person that likes to stay with something?

Angela: I try to anyways.

Outside of her school activities Angela is heavily involved in other endeavors, a private extra-curricular orchestra, private violin lessons, art lessons, Chinese language class, speech therapy and church activities. It appears that she is driven to succeed and that her parents are committed to providing all they can toward Angela's endeavors.

Angela enjoys music especially with a dramatic storyline, such as music from the movies *Star Wars* and *Pirates of the Caribbean*. She sings frequently, although her father and brother have mentioned to her that her singing is somewhat poor. Angela and her parents explained that she sings in the car as well as at home; frequently she would sing during our interviews to demonstrate her point.

Angela is musically skilled evidenced by her having achieved level four competency in the Certificate of Music curriculum, playing first violin in the school orchestra, and first stand, second violin in her private extra-curricular orchestra (See appendix C for examples of music performed). She frequently uses musical terminology appropriately when explaining many facets of her own musicianship. Furthermore, she feels confident about much of her musical ability as evidenced by her willingness to play and sing within our interviews and observations.

Hearing and Schooling Background

The orchestra class is preparing for a concert the following day. As the teacher addresses how the violinist's should hold their instrument when not playing, Angela responds by modeling the explanation. The teacher explains how he will bow to the judges at their upcoming festival, turn around to look at the ensemble and say, "Watch, listen, think." For the majority of students in this orchestra, and 8th graders throughout the country, 'listen' is not a cause for pause. For Angela, 'watch, listen, think,' has significant meaning.
-Field note excerpt, Angela's orchestra class.

Angela was born on November 1, 1998 and her hearing loss was confirmed at ten months of age. Angela's parents, after a comprehensive process consulting doctors, audiologists, and speech specialists, came to "a consensus that it's better for the kids to learn auditory oral instead of sign language." As such, Angela spent approximately four years attending an auditory oral school with the assistance of hearing aids (HA). She developed speech and listening skills to a level that enabled a transition into a mainstreamed kindergarten environment. In 2004 during her kindergarten year, hearing loss in her left ear progressed to a point that her family decided to pursue a cochlear implant. She underwent cochlear implantation in the left ear with a Nucleus 5 cochlear implant manufactured by Cochlear Americas.

> She reported a reliance on her implanted ear during the time of her life when using the two different devices, hearing aid and cochlear implant, commenting, ". . . because this ear was so dominant, I barely noticed when this one was on (pointing to right ear—the side with the hearing aid.) So when I turned it off--because it ran out of battery--I never noticed at all.

This is not uncommon as Angela's implanted ear was accessing softer decibel levels than was the ear using the hearing aid to amplify sound. Subsequently the implanted ear was giving a more complete picture of the auditory information around her.

Angela had a sensorineural, severe, quickly sloping to profound hearing loss that had progressed. Her ability to hear higher frequencies was worse than her ability to lower frequencies making it difficult to perceive higher pitches and softer dynamics (D. Ganguly-Hammes, June 11, 2012).

Angela received her second implant in June of 2011. She reports that she constantly wears both CIs now. Sometimes, however, her mom insists that Angela wear the newest implant alone to help train her brain to use the input from the newest implant. It seems Angela prefers to wear both devices rather than just one; however, when wearing one implant, she complains, "I can't hear everything" and "I lose a lot of the clarity."

Cochlear implants have multiple settings which have the potential to be programmed for different listening environments. In asking Angela for the exact program she used in music class, it appears that she does not choose a program setting based upon the setting's improvement over the others in transmitting musical input. Rather, she chose setting three because "it's a nice number to stick with."

Angela's CI's have the potential to attract attention. The external portion of the device can come in a variety of colors. In previous years she had a bright pink headpiece covers that Angela described as "conspicuous." She has since decided on black as it blends in best with her hair. Her black silky hair is shoulder length and straight, covering any visual indication of a device being worn on the ear or headpieces connected to the magnetic portion of the implanted device toward the back of her head.

She also wears ear molds to better secure the element resting on her ear from falling off. It is a commitment to use the ear molds as they are often painful. Angela reports, "I don't really like it but once you get used to it gets ok. I don't like this one (clicks earpiece several times). This one makes my ear hurt after a while."

When her CI's do attract attention, she can be frustrated by peers who continually ask "Can you hear me?" in a mildly antagonistic manner.

> Angela: When I first meet people, and they first find out I'm deaf, because I don't, like go shouting around you know, but once in a while the conversation will turn to it and I'm like "I'm deaf", like in ocean science camp. My friends were like "Can you hear me, can you hear me?" "I can't hear you, okay!"

While Angela is a capable student and is clearly succeeding academically, her hearing loss fundamentally changes many educational experiences. This account is from an experience at her school's outdoor science camp. Because the external portion of the implant is not waterproof Angela was unable to wear her implants when taking part in water activities, causing miscommunication and confusion.

> Angela: Yeah. And I guess there's a lot of stuff because I'm deaf. You know, the teacher's talking and she goes down and grabs some random sea hair, comes up

back to the surface, and I can only lip read some of it, and I'm like "What the heck is that?" And there was this part of the camp that my friends told me about only like this year, okay? They didn't tell me after we left or anything, or after I had put my implants back on, but there were sharks in the water. The teacher was like "jump up!". There were sharks in the water—apparently, like six of them. And then there were like—on the pier you know, the boat docks, the floating bit—and we're standing there, and we can't jump off, right? And the teacher's like "Look, there's sharks in there," and I was like "No! Don't make us jump in!" And the teacher makes us jump in, and I didn't know there were sharks, and my friends were like—they tell me now they were trying to point it out to me and I was like "what?!?" I didn't get it at all. I'm pretty glad that I didn't know at the time that there were sharks in the water because I would not have jumped in.

Family Background

From my point of view…I think, like, it's important for pretty much everybody, because it's part of human nature (that) you would enjoy music. It's gonna have a big influence in how you come to be a person, you find yourself attracted to beautiful things. So that's how I feel, it important and it's important for myself, and I just love it. I am not good at it, but enough to be able to enjoy it.
-Angela's Father

Both Angela's parents were born in China. Her father came from a family of rice farmers in rural China. He went on to graduate from college and moved to the United States to pursue a graduate degree in geophysics at a prestigious university. Even though a music education in a school setting is rare in China, and what is present is predominantly folk music in an aural tradition, her father is self-taught on several instruments. Even into adulthood, as he has become interested in an instrument, he will pursue learning the instrument on his own.

While a youngster in China, Angela's father learned two wind instruments, a flute-like instrument native to China and a 'gourd', a free reed mouth organ. He reports he was "fond of trying different kinds of instruments [he] had access to." He distinctly recalls observing blind people in his town who made their living playing a Chinese bowed instrument; he had a high regard for their proficiency.

When enrolled in college, Angela's father purchased a used violin and taught himself how to play "simple songs in first position." Once in the United States, he became interested in the saxophone and again, taught himself. Recently, he took approximately one year of piano lessons and was able to "play some songs with both hands."

He recalls from his childhood education that school music classes ended in preliminary school and were basically an aural tradition. After preliminary school, a formal music education was reserved for a select few.

> Only those "that were really talented in music, either because the family they grew up in had access to music education or their parents had more in musical education, … would go to a music school… after middle school. So those are the ones [who] would become the Chinese professional musicians."

Angela's mother did not have musical experiences as a child but she now participates in a church choir, becoming more interested in music after beginning to attend church services. She was recruited by a friend to the choir, which rehearses once a week for two hours. Drawn to her church choir participation, Angela's mother pointed out that when she listens to this music, it gives her strength.

Angela enjoys a parent/teenager relationship familiar to many families. On the one hand she feels loved and recognizes that her parents are committed to her success. At the

same time she is embarrassed by their presence when in social situations dominated by peer relationships.

Description of City, School District, and School

Angela is from a city within a large metropolitan area in the Southwestern United States with a total population of over 55,000 people. The city's website indicates a majority of residents are of Asian ethnicity with a third of the remaining residents being white. The median household income is roughly $100,000.

The school district includes three middle schools and two high schools, and boasts a 99% graduation rate for high school seniors. Furthermore, 90% of graduated seniors attend either a two or four year college. Based on its academic performance as measured by the standardized state assessment, the school Angela attends has consistently received the highest ranking possible.

Previous Music Learning Experiences

From an early age Angela's parents intentionally exposed her to music. As a preschooler the musical experiences were incidental but did become more formalized over time, first with a brief time in piano and then through study with a violin.

> Angela's father: . . . when she was small, especially mom would try to let her listen to music. It's almost like a way for us to teach her language. You know . . .kids' songs. Angela enjoyed it. We didn't particularly pay attention when she started to be interested. That has just been a part of her life from a very early stage.

As a kindergartener, Angela's parents enrolled her in a group piano class. Participation in that class lasted approximately two months and ceased because, to her parents recollection, her "fingers were too weak." Following that experience she took part

in voice lessons which her parents had initiated because they noticed Angela would "always sing off tune." Although her father reports that she made improvement, she wasn't interested in it.

In second or third grade, her parents initiated another set of lessons, this time on violin. Since that time Angela has taken weekly private lessons with the same violin teacher.

Angela's mother: We chose the violin for her. (Mom laughs)

John: You chose the violin for her?

Angela's mother: I guess so, yeah.

John: Do you remember how that came about?

Angela's mother: Yeah. You wanna give this a try? This looks pretty. So she gave it a try and she started liking it.

Toward the end of her elementary school education, Angela took part in the musical class offerings at her school. In fourth grade, Angela studied recorder as part of a once-a-week music lesson. Fifth grade brought about a choice between choir and band, to which Angela chose choir because she would not need to bring an instrument to school. She references choir as a meaningful point in her understanding of music theory and the importance of intonation.

Angela: …that's where I learned a lot of music theory.

John: Like what?

Angela: Like triplet. How to tell a half rest from a whole rest, which is something a lot of kids get wrong. You know it's like, half rest, whole rest, look almost exactly the same.

This early music group experience reflects the emphasis she places on intonation.

Angela: Yes, it was pretty fun, although no one really sang on tune. Just a matter of like, hey, it doesn't matter, like, if you're — if all of the notes aren't in tune. If it sounds like you're trying to sing on tune.

Interestingly, due to the course offerings within her 4th and 5th grade curriculums, she would engage in recorder class and choir at school, while taking violin lessons and practicing violin at home. The duality of school music participation and personal music participation has ramifications for her continued violin playing even if participation in school music ends as she enters high school—a decision that at the time of this writing is unresolved.

According to Angela she had the choice of which middle school to attend. She reports that one middle school had an emphasis on band and the other on orchestra. Angela chose the school with an orchestral emphasis. Even though her older brother attended the same middle school, she holds the perception that it was her choice to attend.

While at the middle school Angela has participated in 6th, 7th and 8th grade orchestra. This past year she auditioned and now plays for a 50-member private orchestra that meets once a week; the orchestra is conducted by her school orchestra teacher.

Current Musical Participation: Music Making in Individual and Group Settings

Angela participates in music with her violin in solo settings and group settings. In the solo settings she is either practicing alone or taking part in her weekly lesson. This duality of music participation gives her a more comprehensive musical experience. It also requires a higher personal commitment to music making. At the same time, the participation in multiple venues seems to be easing the stress of the upcoming decision of

whether to discontinue participation in orchestra as a high school student. The following sections provide a description of Angela's experience in group and individual musical settings.

Music Making in an Individual Setting

The room in her house where she practices is a family room that opens to the center of the home. The front door opens directly into it. Upon entering the large suburban home, one is met by a spiral staircase and twenty-foot vaulted ceilings with a sunken family room void of any furniture save a baby grand piano. This space is dedicated to music.

The glossy, black, baby grand piano sits in the corner with its lid open and music books covering most of the top of the piano, practically hiding the black color. Upon closer inspection it is sheet music—some bound into books, other loose-leaf single pages, many including Chinese writing that appear to have been printed from the internet. Some are in a familiar notation style, others I do not recognize but include icons for rhythm and pitches.

In the center of this barren room is a chair and fully extended Manhasset music stand. Angela's violin is neatly placed directly next to the chair. This room has been purposed for music practice.

Angela's violin lesson takes place in her teacher's house—the only violin teacher she has ever had. Angela's father is very proud that Angela has the chance to study with someone of Ms. Lee's (not actual name) musical accomplishment. In previous meetings he is quick to point out that she performed in professional orchestras in China and graduated from a Chinese music conservatory before coming to the United States. After the session Ms. Lee hands me a brief biography, one which would typically be viewed in a concert

program that lists her multitude of experiences. It confirmed with greater accuracy Ms. Lee's accomplishments much esteemed by Angela's father.

Ms. Lee and Angela stand in a sunken family room that is dense with black leather couches, glossy black coffee tables, floor lamps and an upright piano. Angela and Ms. Lee stood closer to a corner of the room that opened to the kitchen than they did the center of the room, but were uninhibited by the walls. Large vertical Chinese scrolls, approximately three feet long, with Chinese lettering (called *hanzi*) hung beside a framed mountain picture with more *hanzi* symbols on the matte of the picture. Much of the furniture had Chinese qualities of design to them including jade-like glossy finishes and ornate edges that resembled scrolls.

Ms. Lee is in the second half of her life, but carries about the spry energy and passion of a visionary artist/teacher with an irreversible will to carry out her expectations. Though not angry or cynical, she is fearlessly insistent, demanding the best from Angela in terms of technique and age appropriate musicianship. Her pacing is swift, instructions are expeditious, and Angela's time on task made it evident Ms. Lee was the quintessential expert teacher.

Rather than play along with Angela she would instead sing *solfegge* syllables while Angela played the repertoire and exercises. During the lesson she instructed a significant number of musical and violin performance concepts including rhythm, pitch, bow technique, finger technique, tone, dynamics, and accents. Her ability to move in and out of *solfegge*, modeling on her own violin, giving direct instruction through the hour long session was at a breakneck pace. The intensity was magnified as she stood less than six inches from Angela's fingerboard, giving her perfect view of Angela's fingering and bowing

technique and giving Angela no doubt, through her instruction and singing that she means what she says.

> With a no nonsense tone and thick Chinese accent, Ms. Lee adjusts Angela's finger while Angela maintains her violin in playing position. The issue arose while playing the note C, and this section of the lesson is a review of C major and G major scales, rather difficult for violin. Angela then performs the scale. First in a determined and nasal tone, Ms. Lee then instantaneously shifts into a beautiful operatic tone to sing while Angela ascends the C major scale along the fretboard.
>
> Amidst singing *solfegge* while Angela plays the scale, Ms. Lee responds to flat intervals in an energetic talking voice that borders on yelling, "HIGHER!, HIGHER! HIGHER!" and just a few seconds later, "NO, NO, NO!" This will hardly be the only time the she exclaims a command at that volume and intensity

Like an expert teacher, Ms. Lee checks for understanding and structure's Angela's learning with notes in a legal notepad which also contain the week's assignments.

Angela's response to Ms. Lee is one of quiet confidence and comfort as if with a family member. It appears Angela knows that what goes on here is meaningful and worthwhile. She seems to be safe to make mistakes, ask questions, and is being held to high expectations. She applies herself fully, taking on the appropriate level of seriousness and formality one would expect when working with a nearly 70-year old teacher. Conversely, Angela doesn't leave her 13-year old self out completely, as her attention wanes part way through the hour-long lesson, as the following excerpt describes:

> Ms. Lee opens a book to a new etude. This selection utilizes octave double-stops. She asks, "Why is octave harder?" Ms. Lee wants Angela to focus on the octave

> concept but Angela is distracted by the challenge of the new notes. Angela "tunes out" her teachers voice and succumbs to the desire to play a few notes with gentle bow strokes. Ms. Lee undeterred, continues talking about technique and performing the octave double stops….Angela continues, ever so quietly, distracted by the new fingerings without missing a beat of her instruction. Ms. Lee swats away the tip of Angela's bow to keep her from playing, and continues with her instruction as if nothing happened. To an observer the action might be interpreted as rude but it in the context of this close, almost familial bond, it seems completely appropriate.

There is a beautiful rhythm of learning between the two who have worked together for close to five years. Angela knows this pace — how it works, when to observe the modeling, when Ms. Lee will isolate a passage, and how to respond to correction of finger placement and shouts of "higher, higher." It is like watching a dance, and the trust is reciprocated. Ms. Lee is sure of Angela's ability to comprehend what she is teaching and trusts her motivations to improve. It appears, based on the following excerpt, Ms. Lee is fond of Angela and believes in her abilities.

> On the way out the door Ms. Lee speaks to me through interpretation from Angela's father. "She has many students every day of the week," her father translates, "but Angela is unique. She has a developed ear and has taken to techniques such as changing positions faster than many students with typical hearing."

Music Participation in a Group Setting

The school that Angela attends is a middle school made up of 6th, 7th and 8th grades with a total enrollment of approximately 1,200 students. Just over 60% of the students at the school were classified as being of Asian ethnicity and only 11% qualified for free and

reduced lunch. The school district contains three middle and two high schools, and boasts a 99% graduation rate for high school seniors. Further, 90% of graduated seniors attend either a two or four year college. Based on its academic performance index as measured by the standardized state assessment, the school that Angela attends has consistently received the highest ranking possible. Angela's orchestra teacher recalls that for many years national and international visitors would often visit the school as a model for their own.

Angela has played in her school's string orchestra since entering in 6th grade. The orchestra program has grown over the last three years in which Angela has been involved. During her 6th grade year, she was part of a group of approximately 30-40 students. In 7th grade Angela performed with approximately 80 students, and her current orchestra has 110 members. Mr. R, the orchestra teacher, began at the school over 20 years ago when the course offerings were not exclusively strings. Recently he has been able to devote his full attention to the string program. The growth and notoriety of the program has initiated the building of a new performing arts wing on the school campus, set to open within the next six months

The most experienced string group has large photographs of performances lining the classroom walls. From a distance it is obvious the orchestra has played in prestigious venues because of the size of stage, ornate wood comprising the floor, and in some, a vast pipe organ pictured behind the ensemble. Upon closer inspection, the pictures depict the orchestra in action and the performance halls where the pictures are taken are prominently displayed on the photographs. The Kennedy Center, Carnegie Hall, and the American String Teachers Association are three of the more notable venues and events.

The 110-member orchestra in which I observed Angela is crammed into a modular building. Students sit in five rows of concentric circles— typical of instrumental ensembles with first violins to the left, second violins to left of center, violas to the right of center, cellos on the end to the right of the conductor and a straight row of basses in the back (see appendix C). Noted on the seating chart (appendix C), I observed from three different areas. One area was directly in front of the first violins, approximately four feet from Angela. The second and third were toward the back of the orchestra to the right of the conductor. All vantage points gave visual access to Angela during these rehearsals.

Rehearsals of the 8th grade orchestra were typical of what one might observe in most large instrumental ensembles at a public school. There is a set-up time where students entered the class and assembled their instruments, a warm up portion usually using a scale and variations in descending/ascending patterns and various bowing patterns, and a time devoted to learning repertoire for an upcoming concert.

Within the warm-up and repertoire centered aspects of the rehearsal, performance episodes and rehearsal frames make up the framework of how time is utilized. In rehearsal frames, students are typically listening to the teacher who provides direct instruction regarding some aspect of the music or playing. Performance episodes are the times when students are actively engaged in performing the music. Often the material covered in a rehearsal frame is what is played during the subsequent performance episode.

The rehearsals I observed contained dozens of rehearsal frame and performance episode pairings. Some classes were 50-minutes long while others were 90-minutes long. Both lengths are quite long for the typical 8th grade student to remain focused and

attentive. Angela was consistently and completely focused. As her orchestra teacher described, Angela was quite simply the consummate ensemble member:

> She can play everything that we are doing and reads well. It would be great to have a whole section of her. She's always willing to do everything. There is never a lazy day for her, and I've never seen her in another class, but I would assume it's like that everywhere. She comes across as one of the high achievers.

The orchestra teacher further substantiates this notion:

> Yeah, she is someone who— I haven't counted them—but just yesterday I asked them [the orchestra] to vote for somebody who is basically a good representation of what the model orchestra student is. I am curious to see if her name came out on any of those.

Another aspect of participation in the group setting, and customary amongst orchestral seating charts, is the subunit of stand partner. String players are typically paired with someone of a like instrument with whom they share a stand, and in turn, share music. The shared music is a physical embodiment of the way in which stand partners experience music together, playing the same part and marking the single piece of music with notes that benefit both players. In a rehearsal like this, stand partners are the closest in proximity to one another and have the most opportunity for interaction.

Angela said, in regards to her stand partner from the previous year, they "didn't know each other well, but were on good terms." Angela's current stand partner is one of her closest friends and certainly the closest friend within the orchestra. Sitting with friends is important to Angela for the emotional safety.

John: Do you prefer sitting next to your friends?

Angela: Yeah. I'd rather sit by my friends. It makes you a little less nervous. Because you know your friends not going to get as mad at you.

The strong relational connection with her current stand partner transcends the rehearsal time and was observed on multiple occasions outside of the rehearsal time. The following field note excerpt is an example of this:

> Upon entering, before the orchestra class has officially begun, the room is in study hall where approximately 30 students are present in the class. It is the end of the period and seemingly the structured activities for the day are over. Approximately eight students were sitting in a circle talking to one another, approximately five were speaking with the teacher, while smaller groups of two or three were in conversation scattered about the room or engaged in some non-descript activity. Aside from another bass player and cellist who had their instruments out, Angela and her stand partner were playing together in a spirit of togetherness and fun without the aim of intense correction. Simultaneous performance was the experience that provided avenues for meaningful connection.

The informal musical collegiality that was commonplace outside the rehearsal was also evident within the rehearsals, although the actions, accompanying emotions and their expressions were more subdued and formal. While in this musical setting, Angela's musical and social worlds were occurring simultaneously as evidenced in the excerpts from field notes below.

> After a few measures the teacher gestures to stop the ensemble, many others place their violin on their knee in a rest position. However, during this episode, Angela

keeps hers tucked under her chin. She smiles to her stand partner, makes a mark on the music with the approval of her stand partner who gives affirmation with a nod and smile back, there is some inside joke which is very typical of the relationship musicians share when sitting next to one another. This is all very natural interaction—mature and empowering, it is joyful.

Motivation

"I like classical music, and I like movie sound tracks…because movie sound tracks sound dramatic…"

Initial interview questions and data analysis were focused on three factors likely to affect the quality of the students' musical experience: sense of social connection, use of accommodation and learning strategies, and personal motivation. In this section I will discuss the findings related to Angela's motivation for continued participation that emerged during interviews and observations.

Three issues emerged in relation to her motivation to participate in instrumental music: (a) influence of relationship and repertoire, (b) future plans: art vs. school music participation, and (c) dual musical identity: individual and group settings.

Repertoire and Relationship

Angela has an affinity for specific repertoire. Her instrument and participation in orchestra afford her the opportunity to play the music she prefers. As has previously been noted, Angela has an affinity for dramatic music, specifically, music that accompanies movies.

Angela: I like — I like Hans Zimmer but that is only because he did *Pirates of the Caribbean* soundtrack.

Repertoire she is interested in, but not supplied in her orchestra, she will find on her own. Angela will hear music on a show or movie and attempt to locate sheet music for it on the internet. An interest in the soundtrack of animated Chinese programs led Angela to find the musical themes through a Chinese search engine (*Baidu*). The themes were written in a notation her father said was common in China. With her father's assistance, Angela taught herself to read the Chinese notation, enabling her to convert the music into the Western notation style she has grown up with.

Angela's orchestra participation combines both relationship and repertoire. There she plays the music she enjoys with her peers.

> Angela: I like being in orchestra, really, most of it. I like getting —I like getting those sort of fast, happy pieces. And I like pieces that I already heard before… like a song from a movie or part of a soundtrack.

> John: Which do you prefer? Playing the violin by yourself or playing with your orchestra?
>
> Angela: I kind of like playing with a group better because it's a group and be with your friends and stuff.

As the above excerpt indicates Angela prefers playing in the orchestra, partly because the orchestra is necessary to accomplish Angela's preferred repertoire. Also, an orchestra is Angela's preference partly due to the relationship with the other members.

Another relationship that has influenced Angela is her parents, because music is vitally important to them. Recall her father's belief that music is important for all people. Their belief has translated into tangible expressions; for instance, Angela's parents have spent approximately $10,000 on lessons and another $6,300 on instruments. They have also attended 200-hours of violins lessons, conservatively. Angela recognizes their support and is grateful for it.

Future Plans: Art vs. School Music Participation

An unexpected finding that was amplified during the weeks of data collection, and due to Angela's upcoming graduation from 8th grade, was the decision of whether to continue with school orchestra participation in high school. Research indicates major life transitions, such as the attrition to high school, exacerbates students quitting (MacNamara et. al., 2006, Manturzewska, 1990). This seems to be the case here.

Angela has played in orchestra for all three years while in middle school. It appears discontinuing orchestra participation may occur for one of two reasons. Angela has expressed interest in an honors program her brother was a part of, which limits elective options. The second stems from a motivation to pursue visual art in place of orchestra.

John: Are you excited about (playing in the high school orchestra)?

Angela: Pretty excited, although now I kind of wish I put fundamentals of art…

The desire to enroll in art classes seems to be the extension of Angela's belief about her ability in art, in relation to her music ability. The following excerpts are examples of Angela's sentiment as it relates to art:

John: Is there something you do where you're one of the best ones?

Angela: Drawing.

John: What do you like about art better?

Angela: I'm just more inclined to doodle than I am to practice my violin.

Angela: Like at that time (6th grade) I was way more into playing the violin and yeah…

John: You're not as into playing violin?

Angela: Mostly because I have found some more stuff that I can do.

John: Such as what?

Angela: So, it's a little split. I like to draw a lot more .

Early in data collection, it was evident Angela's father desired for her to continue orchestra participation, but he was gently approaching the topic, stating, "this orchestra thing has become a sensitive topic so I've just kind of put it off for now and see if she calms down." As of the writing of this document Angela had registered for high school orchestra, however she was regretting that choice.

A possible factor in her desire to quit is her perceived level of seriousness about music. When describing her choice to play as an incoming 6th grade student, she said she was "more into it." In many other instances, as the excerpts below indicate, Angela referenced that she was not as "serious" in comparison to previous years or in comparison to some peers.

John: You think you would do it (play in high school) then?

Angela: Well, I wouldn't do performing arts, which is like more higher level orchestra. But I would do orchestra.

John: Why not the higher level?

Angela: Well, I'm not that serious about it, really.

When posed with a hypothetical situation of playing violin in college, she describes her lack of seriousness as reason for not playing.

Angela: Like I might — I might play for an orchestra but I wouldn't play like really seriously.

John: What does seriously mean?

Angela: Like, to me, it's like where you really want to do and you actually want to do this

John: Uh-huh.

Angela: Kind of like I feel like I should stick to this because I already started. I like it enough to keep playing but I don't like it enough to really want to improve.

To assist in understanding what Angela means by seriousness, the following excerpts from an interview shed light on the term, as she describes her stand partner as being "serious."

Angela: She actually wants to practice and she's like...she's more into music. She likes music more than I do. She likes it enough to seriously want to continue without having to be persuaded or otherwise. And me it's like...play, and not really practice that much.

Isolating Angela's use of the word "serious" a pattern emerges;

- "it's like where you really want to do and you actually want to do this…."
- "like it enough to keep playing but I don't like it enough to really want to improve."
- "likes it enough to seriously want to continue without having to be persuaded or otherwise."

When Angela makes judgments about the "seriousness" of a player, or reflects on her own "seriousness," it tends to focus on the level of perceived intrinsic motivation. Her stand partner has it. At one time Angela had it. Now Angela doesn't because she must be persuaded to practice. Another example of this belief occurred in my first observation of Angela in her orchestra class.

> During the rehearsal, a social studies event was to occur and approximately 15 students were to leave and attend this event. Twenty minutes into the rehearsal these 15 students put away their instruments and left to attend. Approximately five students were first violins who were closest to the teacher, reflective of their high levels within the hierarchy of violin players. As those students left, the teacher asked if anyone would want to move up, into the empty seats—the preferred seats. Angela being directly behind those that left, and very close in skill according to the violin setup, did not move or show any concern to indicate she was considering her teachers general request to move up.

Angela's orchestra teacher also uses the term serious to describe certain violin players in the school orchestra, Angela, and to make sense of the situation described above.

> John: I did not see Angela. I didn't see her consider herself to move at all.
>
> Angela's orchestra teacher: She may not want to sit in the front. I mean, because there are violin players in there who are clearly better. There are some who have been taking lessons for much longer. The two top players are very serious about it. Both play in elite youth orchestras; both study hard and practice a couple of hours a day. They are big time serious. And there are a few others who are almost at that. I don't see her as being someone who wants to step up and be the principal player,

but just wants to be good and play in the section. I may be wrong on that. But that's the way I see it.

It appears Angela believes her levels of motivation are not at the levels of the upper echelon of musicians in her orchestra. It is also evident Angela believes her own level of motivation is waning compared to how she perceived her previous levels of motivation. This may be an influence in her desire to change electives to art—an area in which she believes she is more skilled than her peers.

Dual Musical Identity: Individual and Group Settings.

Another finding related to Angela's motivation for continued participation is the way in which she identifies herself musically. Angela plays alone in two settings: at home for practice and in her violin lessons. She plays with others in two settings: her school orchestra and in a private orchestra. The group settings comprise the 8th grade orchestra at her middle school that rehearses nearly daily, and the extra-curricular orchestra which meets one night a week. To Angela, these two situations are different. One is not the extension of another. They are related but are each unique. This perception seems to have come about for a few reasons.

Angela's musical identity as a violinist was being shaped early on. Angela began forming as a musician—as a violinist—before school music was an option. Subsequently the 'solo' or 'violinist' identity formed before there was a group or 'orchestra musician' identity.

Angela's identity as violinist was separate from her school musician identity. Even when school music began in fourth grade, and continued through fifth grade, it did not incorporate the musical training on violin she had received to that point. For two years

school music participation was uniquely separate from her violin playing. Further, Angela's father views the two venues separately. He makes a distinction between her playing in both venues when he remarks, "she wants to drop out of orchestra… she will want to continue playing violin."

Angela nurtures two separate musical identities, the school music identity (Angela the orchestra member) and the personal music identity (Angela the violinist). The presence of the personal music identity includes a commitment to personal music making and expresses the value Angela places on music regardless of her participation or non-participation at school. Possibly discontinuing participation in the school orchestra is unfortunate, but it does not carry the same weight because the personal identity is not lost as it is independent of school music participation.

Accommodations and Learning Strategies

I trust my fingers better than I trust my voice.

- Angela

Challenges: Rhythm and Pitch

While the research related to rhythmic acuity for individuals with hearing loss does not lead one to a belief that significant issues would arise in the rhythmic aspect of Angela's musical experience, Angela nevertheless perceives herself as not being good at rhythm.

In this interview excerpt, Angela refers to a negative self-belief regarding rhythmic acuity. Later in the excerpt she speaks about the strategy she uses to accommodate the challenge-- an attention to visual input.

John: Have you ever wanted to be a conductor?

Angela: I once thought about it, like, for a couple seconds, and then was like "nah—my rhythm's totally off".

John: Your rhythm's totally off?

Angela: Like...I can't keep a beat very well. It takes me a lot of practice to get the beat right… like if I do this *taps table in steady rhythm* after a while I'll get off beat.

John: That's pretty good [in reference to her tapping].

Angela: Or if I try to conduct… or if I try to beat a piece of music in my mind, like, one that…what's that piece?...*I'd Like To Teach The World To Sing* has a lot of like, random slurs… and syncopation sort of things. I wasn't always sure how long to hold something-

John: Right

Angela: * I just like, look at my partner and make sure I do the same thing he does. *laughs*

Angela reports issues with her personal rhythm. However, in observations of both solo and group settings, I did not observe any significant rhythmic errors atypical for students at her age or developmental level. Rather, based on the physical manifestation of rhythm in her orchestra class, predominantly bowing, I observed virtually no problems with rhythm that seemed out of place for a violinist her age. To the contrary I observed above-average performance in this area. The data here corroborates research conducted by Korduba (1975), Roelofs and Zeeman (1949), Rileigh and Odom (1972), and Squires (1982), and reinforces the notion that vibrotactile stimuli (such as a vibrating violin) has advantages in improving rhythmic capability (Darrow, 1987; Darrow, 1992; Darrow & Goll, 1989; Gfeller & Baumann, 1988).

A significant portion of the research in regards to the pitch discrimination capabilities of individuals with cochlear implants suggests that their ability to discriminate between two pitches is problematic, some research indicating ability is no better than chance (Gfeller & Lansing, 1992; Looi & Radford, 2011; Spitzer, Mancuso, and Cheng, 2008; Veekmans et al., 2009). Not surprisingly, data in this study revealed challenges with intonation in Angela's experience.

Intonation is Angela's biggest concern. She realizes she cannot always discriminate intonation well. This notion was referenced many times in our interviews. She reports intonation difficulties in several musical contexts including singing, while attempting to transcribe music she heard, and in relationship to altering a pitch on her violin when realizing the error.

Angela's father corroborates this perception:

> Sometimes, like she feels, she knows she's off, out of tune but she doesn't know if she's too high or too low. So that is how she gets really frustrated. Plus I tell her, you're off. And she says what? High or low? And I say, I can't hear either because I never had training, but I can tell it's off tune. Then she'll say, I can't hear it either but I can tell it's off tune. She gets pretty frustrated about that many times.

> John: Your dad told me, when I was here a couple days ago, that you sometimes will listen to music on a movie and then write it down

Angela: Well, I tried to do that but it doesn't work a lot. Mostly because it's hard for me to like match the notes, plus I can't sing in tune which doesn't help.

Angela's challenge with pitch is also a source of fear and paranoia. The risk of creating a musical error carries with it social ramifications.

Angela: I remember once in 6th grade it was kind of scary. We didn't have any violas until late in the year. Every time I played a note out of tune the kid in front of me or the kid next of me would give me this look like "You are playing it wrong!" It was really scary, and [I] was like "What am I playing wrong?" Freaked me out a lot.

John: How did that make you feel?

Angela: Freaked out. Like what am I playing wrong???

John: Did you get sort of nervous?

Angela: Yeah. And that made me play worse.

In another interview Angela describes the sense of risk as paranoia.

John: What does paranoid mean?

Angela: It's sort of like "am I playing this right? Am I playing this right? Am I playing this right?"… going over and over in your head all of the time. If it sounds off tune, I generally try not to correct it like try not to try to correct it because there is a 50% chance I'm going to get it —I'm going to make it worse usually it is going to land in that 50% chance where it gets worse. So I try and fix it by myself, which is what the tuners make me do. So I can look and see if I am playing it off tune. And I can sort of hear it, barely. I can hear it, but I can't fix it unless I look at the tuner, because …if I don't look at the tuner, and I fix it, there's a fifty percent chance I'm gonna get it screwed up. And usually I land on [that] 50%.

Intonation and the ability to discriminate between pitches is a significant issue for Angela. It affects her sense of ease with the peers around her. It affects her sense of value to the ensemble. It affects her sense of pleasure in music making.

Visual and Vibrotactile Input

Data gleaned through observations and interviews revealed a number of strategies used by Angela and her teachers in achieving better intonation on her violin. All could be classified as using visual and vibrotactile input. The strongest data was the presence of visual cues from teachers and peers, and the use of a tuner that clipped to the scroll of her violin. Weaker data suggested vibration from the violin and through the floor also contributed to Angela's ability to accommodate for intonation issues.

In no observations did I observe the orchestra teacher employ visual cues as a strategy specifically for Angela's intonation development. This is simply because he was unable to hear Angela specifically amidst the other 110 players. However, her private violin teacher did use consistent visual input.

In her private lessons, Ms. Lee would stand closer than ten inches from the fingerboard. Ms. Lee held high expectations for pitch accuracy. The significant majority of pitch issues were addressed as errors were made during the lesson. Frequently she would point or gesture upward in response to poor pitch performance, while speaking intensely, "higher! higher!"— all while Angela continued to play. At another moment in her private lesson, Ms. Lee covered her ears at the 'pain' of the poor intonation. These gestures functioned as visual input, in essence alerting Angela to a problem and then directing her to adjust to achieve higher quality intonation. Angela's ability to adjust while in performance is an indication of the performance skill she has developed.

The private teacher is providing visual information to enhance intonation skills; these cues are not out of place for any violin player, regardless of hearing capacity. Of applicability to music teachers is the notion that these visual and vibrotactile strategies are

not out of place for hearing students. Because the strategies do not seem out of place to the hearing population, a student with hearing loss 'otherness' would be less highlighted if she were performing with these strategies alongside her peers. Further, if a teacher were to use the same strategy with both hearing and hearing impaired students, the action may in fact become an agent for solidifying the 'others' status as an insider within the community of musicians due to the sharing of the process.

Tuner

Perhaps the most important accommodative agent is the use of a clip-on tuner. At the beginning of every rehearsal, each row passes down a clear box filled with red tuners that are clipped directly onto their instrument. The violinists attach these tuners to the scroll at the end of the fingerboard. The tuner allows Angela the highest level of autonomy as she does not have to rely on someone else to provide assistance regarding pitch.

The tuner gives immediate and accurate pitch information that is accessed visually by a screen which can be adjusted to provide optimal sight line while playing. The following are excerpts of field notes in which I observed Angela adjust the screen of her tuner to give her maximum visual access and more importantly, engage with its information.

> All ensemble members play a unison 'A'. The teacher indicates
> "A minor scale, I will conduct each beat." Each note tends to hold each note for approximately eight seconds. While she plays the scale, her eyes travel between the tuner and her fingers, but she still looks to the conductor at important moments in the measure to change notes with the conductor. Again, I observe her with eyes

moving between music, fingers, tuner and conductor with rapid consistency and proacticity.

The ensemble returns to the beginning of *1812 Overture*. Angela plays with her eyes darting between fingers, sheet music, and conductor in an intentional and confident manner. She lifts her bow between phrases at the exact point the teacher had addressed earlier in the rehearsal. She demonstrates a comprehension of the conductor's instruction and gesture's, further reinforcing the previous instruction. She doesn't check the tuner immediately at the start of every note (as if it is the single most important concern). She is highly engaged with all elements (conductor, tuner, bowing) in an appropriate manner. Most of the time she checks the tuner after tracking with the conductor and committing to the pitch with bowing.

After the "fermata a minor" exercise, the teacher proceeds to direct the scale in ascending/descending half notes. Angela looks significantly less at the tuner. This is appropriate as there is less time between notes.

The following interview excerpt also corroborates Angela's sense that using the tuner is beneficial.

John: I know you always put the tuner on your violin, but do you look at it a lot? Or a little bit?

Angela: If it's *Danza* I like to—I look at it a lot, because you know C-sharp is tricky.

John: Okay.

Angela: But a lot of the other pieces I don't really need it. Oh, and then *Andante Festivo*, that one's annoying.

John: What makes it annoying?

Angela: The fact that—that fourth finger G is not really in tune-

John: Okay.

Angela: And occasionally the C and D won't be [in] tune either.

The tuner has ramifications for the confidence Angela feels in her playing. The following excerpt demonstrates the way in which the tuner provides alleviation from the "paranoia" of not knowing if the intonation is correct.

Angela: It feels better to know that because your pitch is off; it's better than being totally paranoid about "Am I playing this wrong?"

John: Do you ever have that feeling when you are playing in orchestra?

Angela: (Immediately) Yep. It got better once we got all those tuners and you can have the tuner on your instrument without taking space on your music stand. So it makes you feel better with the tuners. Because I can check if my G-sharp is too high or too low because we have a lot of pieces this year with fingerings I'm not really entirely sure that I've got it right.

John: Do you look at that tuner a lot?

Angela: Yeah, mostly with the pieces before I start playing. And then we do start playing, I make some more adjustments, especially *Danza* (hums tune). It has all these G-sharps scattered through it. And it makes me nervous, because I'm not sure if I'm playing it right, etc. although most G Major pieces are really easy. There are not too many hard pieces this year.

Angela uses a tuner at school along with the majority of her peers. She is specific about which tuner is optimal, preferring a clip-on tuner rather than an older model where it might rest on the music stand that holds music. She does not use a tuner at home to

practice because the tuner at home sits on her music stand impeding her view of the sheet music.

The tuner as an accommodating agent also acts as an agent of social connection. Virtually the entire class uses the tuners. Angela is not unique in using the tuner. Her differentness is not accentuated, rather, her inclusiveness is reaffirmed because she is using a tuner, as is the rest of the class.

Preparation

Another characteristic that accommodates for Angela is her level of preparation**.** Angela is constantly prepared. She is prepared for class. She is prepared for tuning. She is prepared for rehearsal episodes. She is prepared for the music she encounters in her orchestra class.

In my observations Angela was always in her seat prepared to play before the assigned time. Granted, the class period she attended directly before orchestra class was in the same room, she was still often in her chair practicing before the class began.

Angela is prepared for tuning. As other students are taking their instruments out of their cases Angela is busy tuning her instrument alone. The ensemble will tune during the period, but Angela preemptively tunes herself before it is required.

Angela is prepared for rehearsal and performance episodes. If playing, and the teacher abruptly stops, Angela is right with him. If, in the middle of a rehearsal episode, when the teacher brings his baton up (initiating the start of a new performance episode) Angela is consistently one of the first to have her violin in the ready position. On a larger scale, the data suggests Angela is prepared for her orchestra repertoire, partly due to her private lessons.

Private Lessons Preparing and Reinforcing School Music

Angela has been in weekly private lessons since she began violin as a 2nd or 3rd grader, approximately five years. In her private lesson, I observed Angela play her violin, sing as a mode of sight reading, make gestures as if she were conducting a piece of music while singing and reading a new piece, and play piano demonstrating where in the range she had difficulty reading above the staff due to the number of leger lines. Her lessons are music and instruction rich.

Data revealed that many aspects of musical experiences encountered through repertoire and teaching material covered in Angela's private lessons were being used in her orchestra class. Although the two teachers had never collaborated, I observed frequent overlap of concepts covered in private lessons encountered in the orchestra class.

This excerpt comes from Angela's private lesson

> They begin with Ms. Lee adjusting Angela's finger while Angela has the violin in playing position. With a no-nonsense tone and thick Chinese accent, Ms. Lee adjusts Angela's finger while playing the note C; this section of the lesson is a review of C Major and G Major scales (rather difficult for violin). In a determined and nasal tone, which can shift into a beautiful operatic tone at the drop of a hat, the teacher sings while Angela ascends the C Major scale along the fretboard.

The following excerpt comes from field notes taken from one of Angela's orchestra classes and demonstrates how the private lesson prepares Angela for her group participation.

> The orchestra plays a G Major scale, performed in quarter notes, and then again in eighth notes. The teacher addresses players by pointing at three different

individuals and saying, "You need to use more bow, you need to use more bow, you need to use more bow." G Major is also the scale that Angela's private teacher addressed at her lesson the previous Friday.

In addition to private lessons preparing Angela for orchestra class, both venues provide experiences for transfer from both sets of repertoire.

Ms. Lee and Angela return to the beginning of the piece that Ms. Lee has selected for sight reading. Angela says, "This sounds like Star *Wars."* Her orchestra class is preparing an arrangement of *Star Wars* for an upcoming concert.

After a performance episode Angela states, "This reminds me of *Danza*." Angela makes an association to another piece called *Danza* she knows from orchestra class. Accents arise in the sheet music, Angela asks, "aren't accents more of dynamics?" "Mr. R (the orchestra teacher) counts accents as part of dynamics." First the reference to music performed in orchestra class and now reference to a conceptualization of the relationship between accents and dynamics taught by Mr. R.

Angela's father, in one of his interviews, corroborates this finding.

John: So the private teacher, how do you think that has helped her with her school playing?

Angela's father: Sometimes she [Angela] takes the music from the orchestra and if she has questions then the private teacher can explain a little bit. It's like a little extra help at homework. But also more importantly, she learned all these skills that, number one, they enable her to join in the orchestra, It's like extra practice for her so she can handle the music in orchestra. And actually the music in orchestra is a

little easier than what her private violin teacher is teaching her skill-wise. I think the orchestra and private lessons reinforce each other and keep her interested in music.

Seating placement

An important finding that accommodates for Angela's hearing loss is a favorable seating placement in Angela's orchestras. Two important considerations have affected favorable seating placements in her orchestra's setup. First, the ability to see her teacher's mouth; although Angela uses spoken language to communicate, she will use lipreading to assist her understanding, especially in a noisier environment like a music classroom. Her orchestra teacher is aware of this accommodation and has been proactive in implementing it.

> Angela's orchestra teacher: When she first got here, I just asked her, "where is a good place to sit?" After a while she told me where she's comfortable….
>
> I tried to move her closer to the front and by having her not all the way over here, when she's more toward the center, and a row or two closer to the front than she used to be. She can hear me better, plus she can see my mouth better from the side… and I forget, but I'm trying more and more as I'm teaching and the group is bigger and bigger, to turn my head side to side. But the big thing was I need to find a spot where she was comfortable and she said she was fine there.
>
> John: What do you think she likes about that spot where she is now?
>
> Angela's orchestra teacher: I'm not sure, I didn't ask that. I would think it is going to be more of the visual, she can see my face better, sitting there.

The second consideration is a cognizance towards what section her dominant ear is facing because she is predominantly using input from that ear. In Angela's own words:

> Well, I would say if you are sitting on the very edge of your section and your dominant ear is facing away from your section, then that is a nightmare because you can't hear much of what your actual section is playing so much as the section next to you is playing. That can be really annoying. That happened to me for a long time, getting used to the ear. I was sitting on the very edges and you know I was sitting one seat down from where I sit now.

While her 6th grade orchestra had significantly less members, she was sitting to the extreme stage left (see appendix C). This made it difficult to see her teacher's lips, and it also made hearing her section more difficult as there were fewer members on her specific violin part that her dominant left ear had access to.

Her 7th grade chair placement (see appendix C) improved in that she was more centered giving a clearer view of her teacher's face. The drawback to this placement was the fact that her dominant ear was facing the second violins, diminishing (if not eliminating) any aural reference to the rest of the first violins.

Similarly, in her private orchestra where she sits first stand second violin her dominant ear is facing the viola section (see appendix C).

> Angela: I sit right on the edge of the second violins, so it's more advanced people. And so I sit like, the first and second, second, right here. So you hear all of the violas and no second violins and so it's like freaking doomed. I can't hear anyone behind me.

This year's chair placement (see appendix C) seems to be the most effective. She is centered, promoting a visual connection, while having at least one first violin in the path of her dominant ear.

Adult and Peer Assistance

Data from interview, observation and documents indicated assistance from adults including her father and private violin teacher, as well as her stand partner, were important accommodative elements.

Although I did not observe her father teaching, I reviewed documents which he had used as teaching tools. Both he and Angela's interviews corroborated his participation in her learning, predominantly through identification of rhythmic and pitch inaccuracies during her practice time.

Ms. Lee's assistance as Angela's private teacher has already been presented in the theme "preparing and reinforcing school music" outlined above. Her instruction is highly valued by Angela.

John: So when you were playing this and your teacher was singing the *solfegge* behind you, does that help you or do you feel like it is something extra?

Angela: It helps actually.

John: Does it? How?

Angela: It's…I can't really explain it. It makes you feel better. You know like training wheels for a bicycle. Kind of like that.

Angela's stand partner is of similar skill on violin, sharing a music stand and music, they are responsible for the same part in the music. Angela indicates that her stand partner

will remind her of musical elements such as accidentals and remind her to pay attention when she gets off task.

The assistance of peers and adults is a similar finding of Moss (2009) who discovered that, for students with vision loss participating in instrumental music, parents, private teachers, and other professionals all facilitated outside assistance with learning notation and instrument playing. Angela experienced all three types of adult assistance providing support: parent, private teacher, and ensemble teacher. Peers made up the final "other" group. Subjects in Moss (2009) reported that peers assisted with notation, instrument, rehearsals, and performances.

A Desire to not be 'Favored'

A finding that emerged within the domain of accommodations and strategies was Angela's desire to not be, as she described, "favored."

> Angela: Well, in orchestra they [the teacher] really can't do anything without making it seem like favoritism or something. The teacher might go a little bit easier with intonation and stuff like that, you know?
>
> John: You just said that if the music teacher helped them individually that would be favoritism?.
>
> Angela: If it is like a group then, yeah, it looks a little bit like that. It's like "move up a couple of seats so you can hear me better." It makes you feel awkward, you know, like… I'm not actually this good. It's like, why am I sitting up here, I'm not actually this good. It's mostly because my parents told the teacher to put me a little closer to the front or something. It makes you feel like sooo [sic] guilty. Sitting in front, if someone who is better than you is sitting behind you, it just makes you feel bad, you

know? I get that feeling a lot, like especially during PE [physical education] because my mom is like "Don't push yourself too hard. It's okay, I talked to the teacher." Well, then it means I'm getting a good grade for something I'm not really doing. When everyone else has to work harder for it then it makes me feel guilty. I never use that right. "Right." [Finger quotes, "right"].

Angela's orchestra teacher corroborated a similar idea. In his experience, students with unique needs don't want to be singled out.

My experience with all the students that I've had in the past is that they don't want to be singled out. They don't want to be recognized, but I've never had one who's denied (assistance). All the kids I've had said, "here's what's going on, but don't really do anything special. But if I need the help…" But nobody has ever denied it when someone asked them about it.

In another interview with questions in regard to leadership, Angela responded that she is not a leader. When defining leadership, a willingness to humiliate oneself was a defining quality:

John: Yeah. Are you a leader?

Angela: Not really, more a follower.

John: Why?

Angela: Mm...I'm not actually that good with people, I'm not very patient.

John: Uh-huh. And you need to be patient to be a leader?

Angela: Yeah, and I'm not really willing to humiliate myself.

John: Leaders need to humiliate themselves?

Angela: That's what my dad said, and our principal does that all the time.

John: Uh huh. Do you mean just sort of act goofy?

Angela: No, like he...at the advocacy competition, well at one of the school-wide competitions, if you get more than x number of x things done, then the teacher will do x.

John: Right.

Angela: Like, sometimes there's...this one time he dressed up in a chicken suit…

John: Hmm.

Angela: For a whole day. Walked around the school with it.

John: So to be a leader you need to be able to walk around in a chicken suit.

Angela: Well just like be able to humiliate yourself, y'know?

Interpreting the terms "favoritism," "singled out," and "humiliate," suggest a reticence to be isolated as the impending perception by others is negative. These are not traits Angela desires, further evidence that attention on her is risky.

Data revealed a need for assistance as it relates to intonation and seating placement. Findings related to accommodations and strategies include (a) an attention to visual and vibrotactile input, (b) use of a clip-on tuner, (c) adult and peer assistance, and (d) private instruction preparing and reinforcing orchestra class. However, Angela made it known that assistance in a group setting is problematic as it could be construed as favoritism--receiving preferable treatment without merit.

Social Connection

…she is just like every other kid. No, really, if I didn't know, I wouldn't know. I mean she blends in so well."
-Angela's orchestra teacher

The literature review revealed that students with hearing loss in a mainstreamed setting have an increased propensity towards isolation. This study intended to investigate the social connectedness of Angela within her musical experiences. Through data analysis four themes emerged: (a) factors that contribute to social connection, (b) social connection as motivation, (c) ranking self in relation to others, and (d) social connections that are higher risk.

Factors that Contribute to Social Connection

Relationships, experiences and "things" contribute to Angela's sense of social connection. These three components all occur within her school music experience.

The school Angela attends has an environment that appears to nurture kindness and respect. Rather unique for a middle school, there was not a singe interaction between students that could be described as disrespectful or mean spirited. The following excerpts from Angela's orchestra teacher provide evidence of this.

> This school is very accommodating, and the kids here are really supportive of each other. We used to have a county class (a class devoted to students' with disabilities funded by the county) but I guess the county a few years ago said, "keep your own students now", so we had kids from all over, and now we've got, at this site, a class that's one class of ten or twelve kids and even those kids are accepted into the regular student body. Like at promotion, they'll give those kids a standing ovation when they cross the stage to get their diploma. Rarely do you see anybody who

makes fun of somebody or puts someone down. It's just not in the culture of the school. People just come in knowing. And they don't put up with anything as far as, if there's any kind of bullying or put downs, there's no tolerance for that. I think a lot of it is just that that is the nature of the school, its the nature of this community. We just don't treat people like that. It's nice.

Relationships are factors that contribute to Angela's sense of social connection. In the school orchestra musical setting, Angela shares many attributes with her peers. One significant commonality is Angela's ethnicity:

Angela: But the thing about the orchestra is that obviously the entire group is Asian.

John: Mm-hmm.

Angela: Like either Southeast Asian, like Indian y'know? Or Chinese-Korean, Japanese, but they're all Asian. And maybe there are ten kids in the orchestra who aren't Asian, like Caucasian, Mexican or Spanish or something? Everyone else is… it's kind of funny.

A relationship that contributes to Angela's sense of connection is with her best friend and stand partner, Sarah. They play violin together in and out of rehearsal and go through the school day together. In every rehearsal I observed the two leaving the rehearsal together as they moved to their next class. The stand partner functions as an agent of social connection.

Shared experiences and shared "things" contribute to Angela's connection with peers during her musical experiences. Experiences such as daily rehearsals, concerts, and concert tours, as well as "things" like violins, bows and chin rests provide common connections with her peers within the orchestra.

Angela has embraced what it means to participate fully in the school orchestra. She has participated in orchestra every year at the middle school she attends. She has attended each of the concert tours in which she has been eligible. She wears her orchestra shirt on days it is not required.

Her musical skill has provided her inclusion into the first violin section. Within the hierarchy of instruments found in a string ensemble, the first violins are where the soloists sit, the most prolific musicians reside, and for whom the most difficult parts are written. From a musical standpoint, Angela is in a desired place—a place of power.

Social Connection as Motivation

Angela has experienced social connection in her orchestra and the social connection has become a motivating influence. In the following excerpts we see Angela declare a preference for playing with a group, and "companionship:"

John: Which do you prefer? Playing the violin by yourself or playing with your orchestra?

Angela: I kind of like playing with a group better because it's a group and [you can] be with your friends and stuff.

John: Why is that? You like the sound, is there some other reasons?

Angela: I like the sound, it's—it's more...y'know? Like the sound, you play alone it just kind of warbles out, but then it's just like "no." Especially if you have a friend in orchestra, 'cuz then it's like play with your friends.

John: Yeah?

Angela: Like, companionship, y'know?

Ranking Self in Relation to Others

Innate to the large ensemble is the need to divide parts. Historically the more skilled musicians play the more difficult parts and sit in places titled "principal" or "concertmaster." Based on where one sits in an orchestra, s/he has an indication of where their skills measure up to the rest of the class. While Angela's orchestra teacher states he does not advertise this hierarchy of expertise, Angela has still drawn conclusions. While students go about their relationships in the orchestra, skill-based judgments and comparisons are commonplace:

John: You were pretty good for third violin.

Angela: Yeah, and then the kid next to me-- I swear she was better than me.

Angela:

John: Alright

Angela: But I dunno, I was like in [a]higher violin seat.

John: But you are better than she is?

Angela: Well, I wouldn't say that. Anymore, it used to be, she used to sit a stand back or so, but she's pretty much on even footing with me now. And she knows second position, I know fifth position, and she knows I think a little bit of fifth position but she never uses it. She uses second position but [the] teacher hasn't taught me that yet, different teachers, you know.

While the comparisons are present, Angela is uncomfortable making such comparisons because of the way they affect her relationships with others.

Angela: We just don't talk a lot about skill level, you know? Because it makes you feel like you're putting yourself above your friends, or your friend above yourself. It

feels like you're suddenly putting someone on higher footing just because they're better player.

John: And you don't wanna do that?

Angela: Yeah...'cuz it feels kind of awkward to do it.

John: Like awkward if you're telling someone they're worse than you?

Angela: Yeah.

John: What if you're telling someone they're better than you? Does that feel okay?

Angela: That feels like perfectly fine, because most of the time you—you know they actually are better than you are, and you're perfectly fine with admitting it…

Social Connections of Higher Risk

Angela appeared well adjusted getting along positively with others. In class she appears to be well-liked and attends birthday and pool parties outside of school. However, there are relationships and interactions for Angela that are more threatening and are at higher risk for potential negative outcomes. These types of social connections that are higher risk can be categorized into impersonal and personal connections.

The first groups of relationships— impersonal connections— are not particularly personal but are risky in that they have propensity to cause embarrassment or shame. These impersonal, high-risk connections are those that could be categorized as based solely on delivering the musical product for which Angela is responsible to the orchestra. This interview excerpt brings the notion of high-risk connections to light.

John: Do you get more nervous when you sit next to people you don't know?

Angela: Yeah.

John: What are you nervous about?

Angela: its like am I playing this wrong? Gets even worse. So, that's pretty much it, really.

John: You just worry that if you play it incorrectly…

Angela: Yeah, or off tune.

John: Can you think of a time when you played something the wrong way? Did someone say something to you?

Angela: Actually, that happens once in a while.

John: What happens?

Angela: Like if I do something stupid like, play F-natural instead of F-sharp, my stand partner will say "F-sharp" and kind of point his finger like that (motioning on the fingerboard indicating Angela played it wrong.)

John: This is in your private orchestra?

Angela: Yeah. I remember once in 6th grade it was kind of scary. We didn't have any violas until late in the year. Every time I played a note out of tune, the kid in front of me or the kid next of me, would give me this look like, "You are playing it wrong!" It was really scary, and it was like, "What am I playing wrong?" Freaked me out a lot.

John: Have you had fellow students say something to you?

Angela: Yeah. Once in a while first violins in (private orchestra) will be like (whispers) "way too high" like kind of inconspicuous. Which makes it better than saying it out loud. Like it makes me feel better that I know that I've been playing it wrong and I can fix it. That makes me feel better.

High-risk connections that I have characterized as personal are those interactions

and connections that are risky due to a focus on Angela's hearing loss. This initial excerpt describes, from Angela's point of view, her interaction with others whose focus is on her CI's or hearing loss.

John: Do most people in your orchestra class know that you have cochlear implants?

Angela: Probably not.

John: Yeah? *pause* What do you think about that? Do you want them to know, does it matter?

Angela: Well...I won't mind if they know, and if they do know...like I won't mind if they did know, and they don't know… I honestly don't care to enlighten them unless I have to, or unless the conversation turns to that or something. It's like I don't mind people knowing, I don't mind telling people, I just don't like their reaction. Sometimes, some people will go like, some people will be like overly sympathetic about it.

John: Okay, like what.

Angela: Like "Oh, you're deaf?! I didn't kno-ow [sic]..." It's like, "I'm sorry!;" that sort of thing, I don't really care. Honestly, I've been like this for my whole life and I'm used to it. And then like some kids are like "Can you hear me, can you hear me? Take it off, take it off! If you can hear me..." It's like, "Can I shoot that kid right now?" *laughs*

Although Angela has a high level of social connection and has many positive relationships, there is one individual in her orchestra whom she has made reference to on multiple occasions, whose interaction is at a higher risk than other relationships because of the negative social connection. The male student is in the violin section and sits a few rows

back. In our first interview Angela referenced him:

> One of them is definitely not my friend. He throws carrots at us just at lunch. They sell these baby carrot packs. And he bites off half the carrot and throws the rest at us. We all try and steal his ammo.

In a subsequent interview, Angela goes further in depth:

> Angela: You know Lex, he sits two chairs… behind I think, and he's really annoying.
>
> John: Mm-hmm.
>
> Angela: Okay, one, he's really annoying, two, he's really annoying, and three, he's just annoying. He has a fear of deformities.
>
> John: What does that mean?
>
> Angela: He termed it himself. He doesn't like deaf people. Part of me is just... just gonna laugh when his, I dunno, like his kid is gonna be deformed or something. Part of me's just gonna laugh-
>
> John: Uh huh.
>
> Angela: And part of me's gonna be like "Oh shoot. Poor kid." *laughs*
>
> John: Do you feel like you have a deformity?
>
> Angela: No. Not really. It's just like sometimes, it's just like sometimes I kinda wish I wasn't deaf so I could actually go to a pool party and really enjoy it, and then most of the time it's just like sort of back of my mind, not really there.
>
> John: Mm-hmm. Did you used to think about it more, or…
>
> Angela: Not really. It's like...like when someone's blind, they're not always thinking "Oh, I'm blind." It's natural for him not to be able to see anything. For deaf people it's natural not to be able to hear anything. So...

While on the whole Angela appears to have a secure sense of well-being regarding her hearing loss, as demonstrated by making light of the other student's comment, it is apparent this interaction is undesirable as it draws negative attention to her deafness. No other individual in the data is described in these poor terms. In my observation of their rehearsal, I observed their interaction one time. The following is an excerpt from the field notes describing that situation:

> A boy approaches from behind the stand partner and is looking over the shoulder of the stand partner who is focused on some calendar. Angela has referenced this student in her interviews. He sits a few rows back and she mentioned that he has a self-proclaimed fear of "deformities." She doesn't think too highly of him, but he seems to run in the same circle with her good friend and stand partner. "Friends" by association.
>
> Angela talks with him as he seems interested in the calendar. While the boy seems more interested in the calendar than talking with Angela, Angela moves to her seat for the following class.

Summary

This chapter offered a description of Angela's musical life, and interpreted the face value themes as they relate to the three factors of social connection, motivation for continued participation, and use of accommodations and learning strategies. The next chapter takes a similar path describing the second participant in the study, a young man named Justin.

CHAPTER 5: JUSTIN

The purpose of this study was to explore the experiences of two students with hearing loss participating in instrumental music, Angela and Justin. Initial interview questions, observations, and data analysis were focused on three factors likely to affect the quality of the students' musical experience. These three factors are: sense of social connection, use of accommodation and learning strategies, and motivation for continued participation. This chapter offers a description of Justin's musical life, and then interprets the extent to which each of these three factors played an important role in his experience as an instrumental music maker.

Meet Justin the student

My mom was working the entire time, and she didn't have time to take me to the movies or store, so my cousin did that. They filled up the role of entertaining me, which I probably owe them a lot.
-Justin

Justin is a gracious 14year old who is soft spoken, unassuming, and, according to his mother, shy. A ninth grader with a 3.0 grade point average, he reports that he spends most of his time at home— resting, doing homework and listening to music on Spotify, especially 'This is It" by Michael Jackson. He typically wears athletic gear, hi-top basketball shoes and a Chicago Bulls baseball cap with an uncreased bill which rests high on his forehead, although the Knicks are his favorite team due to their recent Asian American star Jeremy Lin. Justin's hair comes purposely underneath the hat, partway down his forehead in the front, and covers his ears on the sides.

Basketball is a favorite hobby of Justin's and playing with friends five days a week is a particular highlight. A significant portion of his life is spent outside of school with friends

because his mother owns an eatery in the downtown area and generally arrives home late. Justin values his friendships and demonstrates care for them.

> Justin: All my friends say I'm nice…really nice to people. Like yesterday, I walked my friend who lives over there; he's kind scared of the dark, so I walked him. He said that other friends said about me being nice I just try to be as nice as possible.

Hearing and schooling background

If I was to go to school without my hearing aids, it would be the same as being absent because I am not able to hear anything.
-Justin

A focus on Justin's ears began before he was two-years old. While in South Korea, a cosmetic surgery unrelated to hearing loss was performed on Justin who was born with the top of his ears folded down. Only one ear underwent surgery while in Korea; the other, according to his mother, still needs the cosmetic alteration. She desired to have the surgery this summer, but Justin wants to wait until after high school.

Justin's hearing loss was first recognized in second grade by a school teacher who recommended Justin receive audiological testing. This first test was presumably a misdiagnosis as it came back without a prognosis. The following year, a different teacher made the same suggestion and the result of this second examination confirmed Justin's hearing loss. Hearing aids were prescribed and he has been wearing them ever since. He has a moderate bilateral hearing loss due to conductive and sensorineural issues (D. Ganguly-Hammes, personal communication, June 11th, 2012).

Justin characterizes the severity of his hearing loss in the following dialogue:

> John: How well do you hear when you don't have your hearing aids on?

Justin: Not that good. If I was to go to school without my hearing aids, it would be the same as being absent, because I am not able to hear anything.

Justin: At first when I went to school I had trouble hearing, but I didn't tell anyone about it because I thought it was just me. She said there was a huge problem with my ears, my hearing, and gave me hearing aids when I was in 3rd grade. And that actually helped a lot.

John: How did it help?

Justin: I was able to hear really good.

John: What things were you hearing?

Justin: I could barely hear the teacher what she was saying, but now I can. When I was first talking I could barely hear then, too.

When he does wear hearing aids he feels confident in his ability to hear, even at lower volume levels. He reports that he can hear music "perfectly" with his hearing aids on, even the softer portions. Further, he does not view his hearing loss as a disability. Instead he states, "disabled means something you can't do. Obviously, I *can* hear."

Justin's hearing loss sets him apart from the majority of his peers and family. He commented that he knew a couple of people with hearing loss but was not close to them, and to his knowledge, no one in his family has hearing loss. Justin does deal with challenges that typically hearing individuals may not have. Justin reports, "Without my hearing aids it's kind of hard. I have to change my batteries every four days—so that's a pain. Like, also if I forget to put them on, that's another issue. So my hearing loss is a huge deal." He likes to wear his hearing aids, but also described the physical toll of wearing them saying, "sometimes I wear them too much and my

ears get worn out. My ear starts to bleed." Moreover, wearing hearing aids also limits his activities, especially those incorporating water, "the only thing I hate about the hearing aid is that it's not waterproof. That's the biggest issue for all hearing aids. If they were able to make waterproof hearing aids, then it'd be perfect."

While he is different, he does not seem to carry anxiousness about his peers thinking negatively of him. He reports that people may notice his hearing aids but doesn't think they really care; although, recently one friend found out about his hearing loss and got mad because Justin hadn't told him. He appears comfortable in his school, believing that the student body is respectful of students with disability stating, "Everyone at our school is like you know...they wouldn't make fun of a disabled person. They still don't make fun of me."

Justin has attended school within the same district since kindergarten. The community in which he has grown up is an affluent suburb of a large metropolitan area with a total population of approximately 20,000 people. Just over 68% of residents are white and 25% are of Asian descent. The median household income was over $135,000 and over 63% of residents are college graduates. Justin likes his school because teachers "support you…are nice….[and are] passionate."

Family Background

Now it's 2012. (I've been a) single mom for more than ten years—
it's tough, that's why I work hard.
-Justin's mother

Justin's mother came to the United States in 1991, having grown up in South Korea. Her marriage to Justin's father brought her back to South Korea in 1996. Justin was born in

1997 and they divorced in 2000. She returned to the U.S. in 2001 to be with her sister and mom with whom she lived for approximately five years before she and Justin moved into their own home.

Justin's father stayed in South Korea where two daughters from a previous relationship still live. Justin would visit most summers for a few weeks at a time. Sadly, Justin's father passed away in February 2011. Justin's mother believes that his father's passing created "a lot of stress on the inside" and "playing trombone helps his stress get out."

To support herself and Justin, his mother is a small business owner having opened a storefront eatery in the downtown area where she commits seven days a week with typical restaurant hours to ensure its success. Part of her motivation to succeed in the business is to provide for Justin:

John: If you had to estimate how much money you have spent on private lessons, how much do you think you've spent from 2nd grade through now?

Justin's mother: I don't know…its $139 per month now.

John: That's a lot of money.

Justin's mother: Yes, that's a lot of money.

John: Is it worth it?

Justin's mother: I have to.

John: Why do you have to?

Justin's mother: I have to support him. That's why I'm working hard. I have to. I'm his mom.

Justin's mother reports that music was not particularly an emphasis in her life growing up and there was not music in her home. She enjoyed listening to many types of music, but she did not learn an instrument and didn't particularly like to sing. While she may not have had music learning experiences as a child, she is pleased that Justin does stating that, "I feel happy, I feel good he likes music."

Perhaps due to the long hours at the restaurant, Justin's mom is not highly involved in Justin's life, and to a certain extent, they lead independent lives:

Justin's mother: He's kind of lonely, because he doesn't have brothers or sisters. Most of the time I work all day, most of the time he is with his grandma.

Subsequently, Justin is expected to pursue his own interests and facilitate the requirements to participate in those activities traveling and attending his private lessons by himself. His mother generally has a hands-off approach to motivation as evidenced by this interview excerpt:

Justin's mother: I don't push him. I don't push him to study, you know, I don't want to push him.

John: Why don't you want to push him?

Justin's mother: Sometimes you know…he never studies at home anyway. I don't push him. Whatever he says he wants….do it. I want that.

John: What other things in his life is he interested in? That he does his self—you don't need to push him, but he does anyway?

Justin's mother: You know what, he has a lot of friends, he has a lot of fun. He enjoy…I want him to enjoy his life.

Justin's hearing loss and music participation make him unique within his own family. He reports that no one else has hearing loss and no one else plays an instrument which appears to lead to a sense of isolation

Justin: I feel kind of left out. I heard my cousin played the trumpet, but that was a long time ago. My other cousin, she was in colorguard [but] graduated a long time ago.

John: When you say 'left out," what do you mean by that?

Justin: Like, everyone in my family is kind of obsessed with their own thing. My uncle's side of the family is into golf. They all play except two people. My mom's side of the family, cooking and restaurants—nothing's related to music. I'm the only one playing trombone, an instrument.

While there appears to be feelings of isolation, there is simultaneously a recognition of their support for his music participation due to its positive effects in Justin's life. In this excerpt it is apparent that the extended family supports his music participation.

John: What do they [the family] say about that?

Justin: At first it was shock, because they didn't know I played trombone. They don't ask about it.

John: Do you think they think it's cool or do they…?

Justin: They think it's good because, like last year I used to stay home all the time. After joining marching band I've been going out Tuesdays and Thursdays, so yeah.

John: Is that good for you?

Justin: Yeah, it makes me more active.

John: Is it good to be active?

Justin: Yeah.

John: Why is that?

Justin: It's better than staying home and doing nothing for the entire day.

As a whole, Justin's family is supportive of his music learning and his mother carries an excitement about his musical interest:

John: What do you think about [his interest in music]?

Justin's mother: Yeah, it's like "Oh! He likes music!" I didn't know…

In another excerpt, she again demonstrates a pride and pleasure in Justin's musical explorations:

Justin's mother: …then two years ago he started on trombone. He asked me if he can learn piano again; he started to take lessons. It's been more than six months. Now he wants to do flute!

Previous Music Learning Experiences

Although Justin's mother did not have formal music learning experiences in her childhood, Justin has. The first experience was at the initiation of his mother whose motivation stemmed partially from her own childhood.

Justin's mother: Actually I wanted to learn piano as a child. I think my mom didn't care about that so I didn't take lessons. I like (men) playing piano. So I started taking Justin to lessons.

Justin's weekly piano lessons started in the second or third grade and lasted for approximately two to three years before he told his mother, "I don't want to learn piano", to which she responded, "okay, if you don't want to you don't have to." Justin reports that he stopped piano lessons because he wasn't that interested and because his teacher was

too strict. Although he quit due to a lack of interest, Justin does look back with pride on some aspects of those early piano experiences, especially the recitals, stating, "I was a good piano player when I was playing my recitals."

Ceasing piano lessons in 5th grade, Justin's musical participation was dormant until he began trombone in 8th grade. He reports, in the following interview excerpt, his reason for choosing trombone, and the reason for beginning in 8th grade—a slightly delayed starting age than many other students.

John: Why did you choose trombone?

Justin: To be honest, I just liked the name. I had a french horn or trombone, so I picked trombone.

John: And why did you start playing in 8th grade? Do they have music class in 6th or 7th grade?

Justin: 6th grade is in elementary school so I didn't know.

John: You didn't know that they had music class in 6th grade?

Justin: I didn't know how to join or play. And then in 7th grade, I took woodshop and ceramics, because I didn't see the band thing at all. And then I chose band for 8th grade because I didn't want to take ceramics or woodshop again.

John: So why did you want to start in 8th grade?

Justin: Because when I saw the band thing [on the elective schedule] and the instrument; [I wanted to] learn how things go and then at my house there's nothing to do, it's boring… all I do is stay home and play video games. But then I played trombone and it was so much better.

John: Whose idea was it to play trombone?

Justin: It was mine, but then Mr. Smith said that there was only one trombone left for 7th-8th band.

John: So, was it Mr. Smith's idea to play trombone or your idea?

Justin: It was his idea, but my decision ultimately, so I chose trombone over french horn.

Although he quit piano as a fifth grader, his recent interest in trombone has rekindled an affinity for what he refers to as classical music. Subsequently, he has started taking piano lessons again and has acquired a flute to begin lessons on that instrument as well.

Current Musical Participation

Justin currently takes private lessons on piano and plays trombone in the marching and concert band at his school. He first joined as an eighth grader and learned in a hybrid setting, where a majority of students in the class had limited previous experience on their instrument and were learning a repertoire-centered curriculum. He, along with a cohort of approximately five other students were taught using a beginning band method book in an adjacent rehearsal room with the expressed purpose of integrating them into the ensemble as quickly as possible. After one semester of small group learning Justin's individual instruction decreased as he began playing full time in the concert band.

In the beginning of this school year Justin played in the marching band, an experience he enjoyed because of the show, travel, and camaraderie. During the spring semester, the band program shifts its focus to concert repertoire. This is where I observed Justin participating on trombone in full concert band rehearsals and a brass sectional. The

following sections are description of a typical rehearsal and sectional along with context for the instrumental program Justin participates in.

Full Ensemble Rehearsals

The band room at Justin's high school is a typical high school instrumental music room with 25-foot ceilings covered in acoustic tiles. Large storage cabinets for instrument storage are built into two of the four walls. Percussion equipment intended for field shows line the north-east wall, while chair racks, concert percussion equipment, and a drum kit create a second wall-like formation where students set up chairs and stands for a concert set-up. On the front wall trophies are displayed on top of a cabinet intended for filing sheet music. Also at the front of the class is a single white board with five measures of figured bass and harmonic analysis with Roman numerals drawn in black dry erase marker. Above the clock to the right of the band members are twelve square foot signs with names of keys and their corresponding key signature in both bass and treble clef.

His school is part of a relatively small school district with 4,000 total students attending three elementary schools along with a junior high and high school which are housed on the same campus. A non-profit foundation raises one million dollars annually for the district and it is the second highest performing district in its state.

Total enrollment at the campus that includes 7th-12th graders is just over 2,100 students. The largest ethnicity represented at the junior high/high school is caucasian (58%) followed by Asian (25%) and Hispanic/Latino (9%). Just over six percent are classified as having disabilities. The high school is in the top ten percent of high schools within the state based on the results of the standardized state assessment and features a graduation rate of 98%.

The instrumental program at his school has one full time head director and a part time assistant director along with a string specialist who teaches one period a day. The head director was previously the assistant and has been teaching a total of 15 years, six at Justin's high school. The high school and junior high are located on the same campus and both directors teach that age group as well. The junior high offers both a band and orchestra and the high school offers a marching band, two concert bands and one orchestra. In total there are approximately 250 students participating in music.

Justin's concert band teacher, Mr. Smith, is the assistant director. His assignment here at Justin's school has been his first classroom teaching position—one he has been in for three years. Mr. Smith's concert band, in which Justin participates, numbers 25 students and is made up of predominantly underclassmen:

> John: What is their general attitude towards playing and motivation to grow?
>
> Mr. Smith: They enjoy it for sure. They know the other class is more advanced, but there isn't really a motivation to switch because they can't really switch. At the beginning of the year we'll have a senior that will want to switch to be more challenged. That's rare and only happens at the beginning. Otherwise, they are in there and they know who they are sitting with and stuff. It's not super competitive in the way, "I'm going to sit first chair, I'm going to challenge this kid and beat this kid out."

These 25 students set-up in standard large ensemble formation, three concentric circles facing the conductor's podium. Justin and the trombone section sit in the last row furthest right facing the conductor.

Rehearsals of the concert band were typical of what one might observe in most large instrumental ensembles at a public school. There is a set-up time where students enter the room and assemble their instruments, a warm-up portion usually incorporating breathing exercises and work with scales in a variety of descending and ascending patterns, and time devoted to learning repertoire for an upcoming concert.

Within the warm-up and repertoire centered aspects of the rehearsal, performance episodes and rehearsal frames make up the structure of how time is utilized. In rehearsal frames, students are typically listening to the teacher who is providing direct instruction regarding some aspect of the music or playing, while performance episodes are the times when students are actively engaged in performing. Often the material covered in a rehearsal frame is what is played during the subsequent performance episode.

The rehearsals I observed contained dozens of rehearsal frame and performance episode pairings. Some classes were 50 minutes long while others were 90 minutes long. The following excerpt comes from one such episode and portrays the supportive nature of the class while still demonstrating the class includes the presence of students who may not be as supportive.

> Mr. Smith is on the podium… class hasn't really begun yet. Some students are still putting their instruments together. Mr. Smith makes an announcement, "Okay we're going to listen to Pierre play some scales." Pierre is back where the marching percussion is stored. The plethora of xylophones, marimba's, and bells are all on large inflatable wheels—they form the perimeter in which the ensemble sets up their stands and chairs. These instruments are about three feet from the walls—enough to allow students into their locker cabinets to retrieve their instruments.

Pierre goes ahead playing ascending and descending major scales on glockenspiel. It is a fairly bright tempo demonstrating good command of the six scales he plays. While Pierre plays, and a portion of wind players set up their instruments, Justin 'wrestles' with the percussionist who stands and plays behind him daily. It is typical high school male interaction— a poke, a punch, smiles and chuckles about something.

I observe a generally supportive environment. In one rehearsal episode, Claire, the oboe player demonstrated growth from the previous rehearsal. It was apparent to the entire band. Mr. Smith concurs, "That was better." A small clap of encouragement from some in band emerges.

The social environment, however, is not without its risk of embarrassment. In this field note excerpt, for instance, it appears that there are some students in Justin's class that may not be fully supportive.

In a performance episode Justin made an obvious mistake. Mr. Smith was holding the final note of the song and gestured a cut-off. While the band was holding the final note, Justin stopped playing, and released his water key to clear his instrument of extra spit. Just as brass players will often do, he blew a little air through the instrument to encourage more spit out of the horn. Insodoing, Justin made a small "honking" sound just as the band released the final note. To the rest of the band it sounded like a significant mistake, as if he wasn't paying attention—though he was. It is a safe environment so everyone had a little laugh, including Justin and Mr. Smith. However, under his breath, an alto saxophone player in the row directly in

front of Justin glances back at Justin then says to his stand partner—"He doesn't realize he messed up."

Sectionals

The following are excerpts of descriptions of the brass sectional that took place during one of the observations (see appendix B for schematic of student setup and point of observation).

Monday, Tuesday and Friday the school is on a typical six-period day. Wednesday and Thursday they are on a three block day so that periods, which are normally less than an hour, go 90 minutes or more. Today is one of those days. The woodwinds constitute a larger part of the band and subsequently rehearse in the larger room. The brass rehearse in a smaller room that holds approximately 25 chairs and stands comfortably. For this sectional there is one row of players facing Mr. Smith. The row consists of, from stage left: four trumpets, one euphonium, one tuba and two trombones. Justin is on the end. Typically there are three trombones, but Daniel, the section leader is not present. He will arrive late this day—approximately halfway through the class time. I sit behind Justin's left shoulder approximately three feet away--close enough to hear him specifically. Similar to the concert band rehearsal, the brass sectional is led by Mr. Smith, a trumpet player, and consists of performance and rehearsal episodes.

The brass players are rehearsing *The Seal Lullaby* by Eric Whitacre. It is a slow, lyrical composition with harmonic language that includes frequent dissonance through the intervals of sixths, ninths and thirteenths. Mr. Smith asks the tuba player to play the first note with the intent of adding the other players to focus on

the opening harmony. After adding the euphonium Mr. Smith, asks Justin to add his note in the bass trombone part. Without hesitation Justin plays the correct note with acceptable tone and precision demonstrating a procedural knowledge.

While the three players play, Mr. Smith instructs Justin; "You're a little bit sharp I think." Justin adjusts his slide to compensate for the high pitch. Mr. Smith then isolates Justin with the euphonium player who are playing in unison. "I lied," Mr. Smith says, "you're flat," now taking into account the pitch information by the euphonium player.

In light of previous concert band rehearsals, Justin has been ready with his horn up for every performance episode up to this point. He is prepared and attentive.

As referenced in interviews, Justin regards slurring on the trombone as a "difficult" aspect of playing. At one point in *Seal Lullaby*, Mr. Smith instructs the trombones; "okay, it's slurred so 'dah' tongue and move your slide faster."

In the next rehearsal frame Mr. Smith uses a euphonium to model and play. First he isolates the second trombone part then isolates Justin's part. Justin plays with him. With the high level model playing along, Justin's tone, intonation and partials seem especially suspect.

Mr. Smith models a two measure portion of the music. Justin responds with "Oh"-- As if to say "I get it now," evidence of discriminate and analytical listening because Justin makes improvements when it is his turn to play it individually. Pitch is more accurate and partials are accurate. Modeling is an effective strategy here.

After Mr. Smith is satisfied with the individual playing, the eight-person brass section reviews the part. When added to the octet, Justin plays the part correctly. He transfers the individualized learning to the collective ensemble.

Motivations for Continued Participation: Repertoire and Relationship

John: What part did you like about (marching band)?
Justin: I like the shows we do. That was really fun.
John: What was your show this last year?
Justin: The Land of the Free.
Like we did competitions—it was so fun.
And the bus rides —you get to know each other even more; that was a benefit.

Justin is motivated to continue his musical participation by a desire to play the repertoire he enjoys and to be in relationship with other ensemble members as it is "both exciting and fun."

He does not demonstrate motivation to practice individually, nor improve in such a manner that he can audition and play for the more advanced wind ensemble. However, his attraction to what he defines as classical music is an influential force:

Justin: I think it's fun to learn music. If it wasn't, you wouldn't understand why other people would like to listen to it. You know how music is these days… like raps, like these songs? Some people are like, "those are the original songs," but it's actually the pieces played by the instrument. (referring to sampling)

John: What's the best part about playing trombone?

Justin: Playing decent songs, *Star Wars* theme; that's the best part, playing those songs.

John: What do you like about music, you said you listen to it?

Justin: At first I thought it was boring, classical. And now I understand why people listen to it. It's calm, calms your mind, helps you out. I even listen to it when I do my homework.

Justin: since I joined band I started to like the classical music and that's why I started playing piano again.

Repertoire that Justin is interested in, though not assigned in his band class or piano lessons, he will seek out on his own:

John: Do you ever play music that's not in this book?

Justin: Yeah, I print out music online.

John: Like what?

Justin: Korean songs and I play them a little.

John: Do you do that a lot?

Justin: Just occasionally.

John: Do you just google Korean songs or did you hear one sometime and thought "I'm going to find that one?"

Justin: First I hear the original song, the piano version, if I like it, then I try to find it.

John: Where do you hear it?

Justin: Youtube.

John: So you are searching for songs on Youtube?

Justin: I subscribe to a lot of people so I see these songs and stuff. I click on them, if it's a good song I'll …

John: You play them on piano. Do you play them on trombone?

Justin: No because I'm pretty sure the music needs both the right and left hand.

John: But you can sometimes play the melody with your trombone, if you played the melody, which is in the right hand part most of the time.

Justin: Yeah, but the trombone is in bass clef and the right hand is in treble clef.

Relationship

John: Why do you do band?
Justin: Playing together with your friends, having a good time, concert, all that stuff.

Justin's relationships with his teacher and peers, especially Alvin and Daniel, his section leader, are important factors in his continued motivation and are representations of his sense of social connectedness within the musical community.

After joining band, Justin was faced with the task of choosing an instrument. Mr. Smith suggested trombone and Justin obliged. When faced with a hypothetical question concerning Mr. Smith proposing that Justin play another instrument, Justin demonstrates the influence his teacher has:

John: Do you think if he said "I want you to play flute," you would play flute, or would you want to play trombone?

Justin: Um, I would play flute, because I follow the teacher and listen to him or her.

More recently, an interest in flute was originated by a friend in the concert band who plays flute. This excerpt demonstrates the influence his peers have on his actions.

Justin: So one of my friends wants me to join flute, so I decided to give it a shot.

These relationships are influential, yet they do not extend to intentional practice of either trombone or piano.

John: Do you practice your trombone often?

Justin: No, it's kind of a pain to, you know, take it home, because it's so large. Take it back to school, take it home. I usually take the bus.

John: So it's hard to take it on the bus because it is big?

Justin: Yeah

John: When you were taking piano lessons did you practice?

Justin: No, I didn't practice.

Similarly, Justin desires to participate in his band classes but does not demonstrate an initiative to improve for the purpose of playing in the more advanced ensemble.

Justin: I'm in concert band because I didn't want to try out for wind ensemble.

John: Why not?

Justin: Because it's kind of more difficult. Concert band is already difficult enough.

John: Do you want to play in wind ensemble when you're older?

Justin: No, I'd rather stay in concert band because it's more fun.

A barrier to Justin's continued participation after high school comes from a reported lack of familiarity with college and vision for what to pursue in the future.

John: Do you think you'll play music after high school?

Justin: To be honest, I haven't thought that far into my life, it's kind of weird. In college, I don't know what it's like. I haven't been to an actual college, I've just heard about them and see what the campus is about. I just want to see how a college day is like, attend one of the classes, see how its like…

John: You've never been to a college before?

Justin: No

John: Do you want to go to college?

Justin: Yes

John: What do you think you'll want to study?

Justin: I have no idea, it's kind of a mystery.

Alvin

Justin's relationship with Alvin has been an important factor in Justin's music participation and is evidence of positive social connection in Justin's life. In addition, Alvin has been a motivating agent for Justin's continued participation.

Justin and Alvin were both part of the same band when Justin began playing in 8th grade. They grew very close, due in part to similar circumstances and Justin's admiration of Alvin's ability to play loud:

> Justin: At marching season, my friend Alvin and I didn't attend band camp because I was in Korea and he was in China. We didn't know exactly what to do during rehearsals, then at the end we knew what to do. The other people had 1-2 weeks to do the first half of the movements, and Alvin and I had to do it during practice… he became my friend easily, we joined band, we played together,

When asked about a moment he was proud of his musical participation, Justin responded with an instance that included Alvin's assistance in helping him realize the problem with his trombone and referring to him as his best friend.

> Justin: When I had my first trombone…I didn't know what was wrong with it. I tried to blow into it and nothing came out. I tried to play with my friend's trombone, my best friend Alvin's trombone, and air came out really easily. So, when he played nothing came out and then I figured it was the trombone. So, I went to Mr. Smith and he gave me a different trombone rental and I started to play it, and I actually played loudly.

Unfortunately, Alvin suddenly transferred to another school after marching season during the first semester. The following excerpt demonstrates the tremendous impact Alvin's absence has had on Justin:

> Justin: Even though he's gone, like, he's still here with us. Sometimes I even take his name as an alias.

Justin's connectedness to Alvin has had musical ramifications. Recall from the beginning of this chapter that Justin's mother characterized him as being shy. I observed Justin act timidly in his rehearsal and carried that timidity into the volume in which he typically played. However, Alvin's example has led Justin to play louder.

> Justin: Alvin was usually the loud one. So, since he's gone, there's no one to take his place. He played extremely loud… I try to play loud to remember my time with him in 8th and 9th grade. Because he was a good friend in 8th and 9th grade.

For Justin a musical concept such as volume has more meaning than just playing louder. It is a way to remember his friend; it embodies the qualities of Alvin that Justin admired: confidence, honor, contribution, engagement, and taking it "seriously."

Quitting Conundrum

Justin's one qualm with marching band participation is the number of hours required for practice. At the same time these hours are what his family appreciated about his participation as it made him more active and less lethargic.

At the end of the fall semester, as the marching band season was coming to a close, Justin considered dropping out of band. There are conflicting reports as to the motivation for this. In one interview Justin referred to a desire to "get back in shape" and was going to take P.E. (physical education). In another interview he referenced a desire to take

Advanced Placement European History and didn't think there would be enough time with the rigorous band schedule.

The occasion of Justin's consideration of quitting exhibits a dedication to the social connections he has formed in the band setting and the way in which those connections are motivational factors. In this excerpt it is evident that relationship with both teacher and peers is influential. Mr. Smith's counsel, along with the memory of Alvin, motivated Justin to continue participating:

> John: When I was talking with Mr. Smith, he told me that after marching season was over, you talked to him about maybe stopping playing.
>
> Justin: Yeah, because for band, the marching band was kind of difficult, especially if taking an honors class because you have less time. I want to take AP Euro next year, but then I figured out that it would be kind of too hard to do it with band, so I chose band over AP Euro.
>
> John: What did Mr. Smith say when you told him, how did you tell him?
>
> Justin: I told him I wanted to go into PE and he told me about how we already lost one trombone player, Alvin, so he just told me to stay, or think about it.
>
> John: Did that change your mind?
>
> Justin: Yeah, it did.
>
> John: What part changed your mind?
>
> Justin: How Alvin left, and we didn't have enough memories with him.
>
> John: Did you say you didn't have enough memories with him?
>
> Justin: We didn't have enough time together. We hung out, but playing the trombone is probably the easiest way to remember him.

As much as current relationships are a motivating agent for continued participation, former relationships living through the current musical experience are an active part of Justin's motivation for continued participation.

Section Leader: Enabler or Agent of Passivity

The band members are in setup mode. Students are milling about, getting instruments from cabinets, some are in their chairs already setting up their instruments. Class hasn't 'started' although the bell has already rung. Daniel (first trombone player), after retrieving his own trombone walks toward the seats that the section typically sits in. Justin is quite a distance away--about 20 feet away. Daniel speaks loudly—to cover the 20 feet of distance—"Justin get your trombone. We're playing the part today."
Justin leaves the piano he was standing by where his friend, the percussionist/pianist, is playing. Justin had his arms draped around the piano player in a playful chokehold-meets-affectionate physicalization of brotherhood.
After getting his instrument, Justin makes his way to their chairs. 3 non-trombone players are sitting and standing in the trombone space. Daniel is already sitting with his trombone out talking with someone. Justin exclaims, somewhat jokingly, to the 3 non-trombone players standing in his space, "I'm a trombone—get out of my area!"
-Observation, Justin's Concert Band

Along with Alvin, Daniel is an important person in Justin's musical experience. Daniel is Justin's trombone section leader in the Concert Band. In the hierarchy of the section, Daniel is viewed as the leader by the teacher, himself, and fellow students. On many occasions Mr. Smith used Daniel to model a specific part of the music for both his own section and the entire ensemble. In one episode Mr. Smith worked on the length of the last note and had the band sing.

After the first attempt Mr. Smith stops the band and says, "Can we all sing as loud as Daniel?" Daniel responds confidently… "ahh yeah." Justin turns to congratulate him with a smile and laugh.

Daniel takes responsibility for his section and is empowered by Mr. Smith to be a peer instructor.

Mr. Smith isolates a moment in the music where the harmony is unclear. He has the tuba, baritone, tenor saxophone, and trombone play. "Trombone's, A-natural just like tuba," he instructs. Trombones all play the A natural—second position—a position that tends to be problematic with pitch. Justin is a little flat but the other player is worse. Daniel stops playing and seems to want to say something to the other player. Mr. Smith looks at Daniel and says, "Say what you are going to say." Daniel turns to the other player and instructs her to pull her slide in.

In a very poignant moment, Daniel, under no specific instruction from Mr. Smith, changes the part assignment for each of the players. In the following excerpt from a rehearsal, one can see Daniel literally taking Justin's music from his, stand and switching it with the other trombone player's music.

"Why are you switching parts?" Justin asks. Mr. Smith chimes in asking the same question, "why are you switching parts'? Daniel responds, "just go with it." Mr. Smith seems to trust Daniel's intentions and musical discernment and does just that.

In a typical rehearsal this is very rare. The part the teacher-conductor gives to the student is the part that they are expected to play. Rarely does a teacher switch parts—let alone a student.

Justin seems to place himself under Daniel's leadership. He perceives Daniel to be a better player and appreciates the input that Daniel provides. However, in the following excerpt we see Daniel take initiative in explaining cut time to Justin, wrongly assuming Justin needs the assistance.

During the transition Justin looks at the tuba player, who is sitting to his left, as if to initiate a quick conversation. Daniel interrupts, giving some instruction on cut time.

He seems to have thought Justin would need some assistance with that—although Justin did not request the help. Justin responds, "Cut time is no problem."

The symptom of assuming Justin needs more assistance than he actually does may be an indication of a larger issue, which is addressed in this next section.

Daniel: Enabling Passivity

In observations of the full rehearsal Justin did not once respond to general questions to the ensemble posed by Mr. Smith. Nor did he respond to questions aimed at the trombones. Many times when a question was asked, I observed Justin physically "tune out" by looking away as if he did not expect to be called upon. The following three excerpts are examples that depict this 'tuning out.'

Mr. Smith responds to the increase in quality of the most recent exercise, "That's the first time I've seen everyone sit still for the duration of an exercise. How many of you can honestly say they took a full breath?" Justin doesn't raise hand. He doesn't even seem to acknowledge that a question was asked.

The piece of music they are playing is an arrangement of 'old west' musical themes. Mr. Smith wants to make a section more authentic by having band members whistle a part of the music just like is done in the original movie score. Mr. Smith asks, "How many of you guys can whistle?" A few students raise their hands. Justin doesn't raise his hand. A moment later he purses his lips as if whistling himself. Again—he doesn't respond to the question from his teacher, even though it seems he can do what the teacher asked.

Towards the end of the warm-up, Mr. Smith begins instructing the students on how to tune. Justin sits quietly, but seems aloof and focused on nothing in particular—

certainly not engaged with Mr. Smith's teaching. He opens his music folder sitting on the stand in front of him, and looks around surveying the walls and ceiling of the room as if not really listening; he doesn't expect to be held accountable for knowledge.

Similarly, in some situations Daniel would respond before Justin, as if Justin was waiting for that initiation to speak up, even though Justin appears to be generally capable to operate autonomously.

In the last rehearsal episode of the day, the trombones play a section where they provide the chordal harmony to a melody in the woodwinds. There is some mistake—the harmony does not sound correct. Mr. Smith says loudly, "Trombones! A-flat?" Daniel responds for the whole band to hear, "I don't play A-flat." Justin realizes it is his mistake and hesitantly says, "Oh."

The following excerpt is from another rehearsal in which Justin demonstrates initiative and musical awareness that Daniel may mistakenly believe to not be present.

In another rehearsal frame Mr. Smith says, "Trombone's, can I hear A-flat and C…oh, no its F and B-flat." Mr. Smith goes on to sing the rhythm in the trombone part, "one, and, and, one. He does this three times to model their part. Justin hums with Mr. Smith, tapping his foot and moving body his rhythmically as if singing with Mr. Smith. While Mr. Smith did not ask him (or the section) to hum along, Justin joins in the modeling by humming under his own volition. This demonstrates initiative, the ability to join in the rhythm/tempo in real time.

Justin was more reluctant, perhaps lazy, at the beginning of class, but that changed once repertoire started. Justin has yet to answer a question posed to the entire band

by Mr. Smith. However, he did speak up when Mr. Smith didn't realize he was playing the bass trombone part—which was unique from the rest of the trombones. Evidence of knowing what Mr. Smith was thinking, realizing that Mr. Smith thought he was playing incorrectly, discriminating that his part was unique from the other two trombones.

The idea that Daniel may be a factor in Justin's passivity while in the concert band setting arose as I compared the field notes of the observations when Daniel was present and when he was not. One such observation was in a brass sectional, which is a weekly occurrence for the concert band. In the sectional, there were fewer players than with the entire group and Daniel, the section leader, was absent. During this time, accountability seemed higher than normal. Daniel was not there to model the music, nor field questions from the teacher on Justin's behalf, and proximity to the teacher was within ten feet—as opposed to being in the third and final row of the full ensemble set-up. In this setting Justin, was never late to a performance episode and was actively engaged. A field note excerpt from that observation read:

> Once they (the brass players) are all ready, Mr. Smith rehearses a three measure section three times. His score tells him that all the trombones should be joining the rest of the ensemble on beat two. He reviews the section again attempting to determine why Justin is not playing with the other two trombones. Mr. Smith looks quizzically at Justin. Without a verbal prompt of question from Mr. Smith, Justin responds, "Um, I play bass trombone." "Oh, my bad," Mr. Smith replies.

This vignette demonstrates Justin's ability to "read" Mr. Smith, and draw on his own knowledge without the guidance or preemption by anyone. A clear moment of active

participation, Justin had enough understanding to (a) decipher that Mr. Smith, without saying so, was the one in error, (b) comprehend the fact that his part was unique from the rest of the trombones, and (c) understand that Mr. Smith didn't realize what the score said, or that Justin was on bass trombone.

For approximately half of the rehearsal Daniel was not present, but arrived and joined the sectional part way through. The change in Justin was apparent within the first rehearsal episode:

> Mr. Smith asks Justin after the section was supposed to play, "Why did you stop playing." Justin responds, "I don't know."

This finding is further substantiated when comparing the rehearsals in which the two sat directly next to one another, and when they were on the opposite ends of the three person section. In the fifth observation of a group rehearsal, Justin is sitting further from Daniel than I have seen before.

> Daniel is talking with the trombone player in the middle of the section. Justin is too far away to be in conversation with Daniel today. He is sitting closer to the tuba than the trombones. Approximately one foot away from the tuba while three feet from the other trombone player. Justin is more engaged today.

Though Daniel's absence may have a positive musical affect it may have a negative social affect as Daniel is a significant connection to the social fabric of the band. The day he is not there, Mr. Smith makes a joke, but Justin does not respond like the rest of the group does. He is less social, perhaps due in part to Daniel's absence.

> "What's the name of this piece" Mr. Smith asks. "*Seal Lullaby*," one of the trumpet players responds. Mr. Smith retorts, "It sounds like you are clubbing the seal." All

the student's chuckle, Justin included. Some students make small comments to one another, energized by the joke. Justin does not. He rarely talks when the ensemble is all engaged. He talks afterward when it is no longer a group.

Learning Strategies and Accommodations

I observe Justin playing through the music along with the rest of the ensemble and ask myself, is there anything unique here? Anything out of the ordinary? Are there signs of atypical behavior, musical or otherwise? I can't find any-- he is moving his slide and breathing in correct places—to the average observer he is totally "normal."
His musical 'problems' are problems all students have…pitch, tone, partials.
That's why he's part of the group-an authentic member.
His problems are their problems-- his aren't unique.
-Field notes from Justin's concert band rehearsal

In observations and interviews of Justin's musical experiences, unique learning strategies and accommodations were not particularly specific to Justin or to his hearing loss. Justin's mother reports that some teachers follow IEP suggestions including using amplification and sitting closer to the front of the class. As the vignette above illustrates, the way he learns and the way he is taught are the same way his typically hearing peers go about their learning. Justin, however, reports that there are challenges in learning music perhaps attributable to his hearing loss:

John: Do you feel like your hearing loss affects the way you learn music at all?

Justin: Actually, sort of. You're not able to hear the other instruments playing, so you don't know like the harmonies. You can't hear it.

John: Can you hear yourself playing?

Justin: Yeah, but I don't know if I'm playing higher…I can hear myself playing, but I don't know if it's loud or soft.

The most significant issue is discriminating his sound from others playing around him for the sake of more accurate intonation. Justin reports, "It's kind of hard to tell your sound from others sound. The notes you are making from the others."

The interview and observational data revealed the single most prevalent strategy was the modeling and assistance of peers. Justin's section leader in concert band provided high volumes of instruction. Justin revealed peers tell him if he is rushing, playing too loud, or if he is in the wrong position. He reports that he will try fixing them on his own, but if he can't, will ask those around him.

Although no data indicated any teacher specifically asked the section leaders be highly involved with Justin, they did take a significant measure of responsibility in modeling and assisting. Justin's interviews revealed the same was true of his marching band section leader. Experiences very similar to the vignette below occurred frequently in the concert band rehearsals:

> During a warm-up portion of the rehearsal, Justin appears to be a little lost. Daniel leans into Justin modeling the positions or sound by moving closer in proximity. After the scale exercises the ensemble transitions into a tuning period given by one of the tuba players. Players enter, checking their intonation. Justin enters and Daniel begins to motion with his thumb gesturing upwards as if he is playing the wrong partial. During this activity Daniel also leans toward the other trombone player to listen and to take responsibility for Justin and the other students' tuning.
>
> After observing these experiences, I asked Justin about them:
>
> John: There was a couple of times he would lean towards you, what was he doing there?

Justin: He was telling me that I was going too high or too low. And then he like plays the note I'm supposed to so I can fix my notes.

John: There was also a couple of times that he didn't say anything, he just leaned over a little like this…

Justin: Because um, we were playing the same note but I went too high. He leaned over so I could listen to his note and see what's wrong with mine.

John: Does he do that a lot?

Justin: Yeah.

John: Does it help?

Justin: Yeah.

John: Is it easy to hear him or hard to hear him?

Justin: Easy, to hear him.

In addition to peer modeling for Justin's benefit, Mr. Smith also utilized modeling to provide more specific input for Justin, as the following excerpt from a brass sectional indicates:

In the next rehearsal frame, Mr. Smith uses a euphonium to model and play. First he isolates the second trombone part, then isolates Justin's part. Justin plays with him. With the high level model playing along with Justin, his tone, intonation and partials seem especially suspect.

Mr. Smith models a two-measure portion of the music. Justin responds with "Oh"—as if to say "I get it now," which is evidence of discriminate and analytical listening because Justin makes improvements when it is his turn to play it individually. Pitch is more accurate, partials are all accurate. Modeling is an effective strategy here.

A Desire not to be 'Favored'

Justin's preference is that he not be treated with special attention. In this way, his experience and expectation correspond:

Justin: I want them to treat me equally with the rest of the class because in life you know, you don't expect it to go easy on you.

John: Do you feel like your teachers treat you the same or go easy on you?

Justin: I feel like the teachers don't give any special attention to me, so I like that a lot.

John: How about in your band class?

Justin: Like in 7^{th} grade, Mr. Smith would take the new people to teach, so they didn't give any specialty to a specific person.

CHAPTER 6: ISSUES FROM THE STUDY

After coding the data at face value into categories associated with the orienting questions, a deeper, more analytical approach commenced with the intention of bringing to light the similarities and differences in Angela and Justin's experiences. From that analysis arose the three themes that are presented in this chapter: the intersection of social and musical risk for these students; inclusion as authentic membership in the ensemble and specific challenges that set these students apart from their hearing peers. The first two themes concern aspects of instrumental music-making that Angela and Justin share with many of their hearing peers, such as social pressure associated with making mistakes in a public setting. For Angela and Justin, the desire to avoid social risk is amplified by the presence of their hearing loss. The third section of the chapter highlights aspects of their experience that is unique because of their hearing loss.

The intersection of social risk and musical risk

The way in which an environment affects an individual's development has been the subject of significant research and theory from the likes of many, including Bandura (1977) and Vygotsky (1935/1978). Within this domain is the importance of a learning environment that maintains low anxiety for the learner. This is especially meaningful when the student has a disability that may heighten their sense of anxiety. Linguistic researcher Stephen Krashen's (1981) Affective Filter Hypothesis is a lens with which one can view the potential for anxiety in the emergent theme 'intersection of social and musical risk' in the experiences of Angela and Justin.

Developed in research aimed at the development of second language acquisition, Krashen(1981) borrowed the term 'affective filter' from Dulay and Burt (1977). In essence,

as a student is learning, their 'affect' has the capacity to promote or impede input from reaching the brain. A multitude of 'affect' or emotional factors engage the filter both positively and negatively including motivation, stress, anxiety and self-confidence. Krashen's hypothesis posits that students with a low affective filter are more apt to learn than those with a high affective filter, where factors such as anxiety and low self-esteem impede learning. Educators intuitively understand this as they attempt to make their classrooms a safe and comfortable place.

For a student with any disability, their affective filter may have greater capacity to increase due to anxiety surrounding their disability. Specific to students with hearing loss, the questioning of the accuracy of what they are hearing in conversation, in class, and in rehearsal adds an extra variable and perhaps weighs on their minds affecting decision making. As described in earlier chapters, the desire not to be favored weighs on their minds and affects some decisions they make in class. Recall, for example, Justin did not ask his teacher to fix his water key and did not speak up or advocate for himself when in the large rehearsal. Similarly, Angela did not move forward when the option arose during one of her rehearsals. The potential for a high affective filter and subsequent decrease in learning potential is present. However, it seems that both students are in learning environments which cultivate a low affective filter, and when given the choice, make choices that promote a low affective filter, thereby increasing the likelihood of more meaningful music learning.

When contrasting Angela's private lesson with her ensemble experience, a unique theme emerged. In the private lesson setting she received the most pointed and specific

information aimed at violin proficiency. Here she was at her most vulnerable musically—where she was "wrong" most—a place where her affective filter might be high.

At the same time, the private lesson was also the safest social environment. There were no peers present. The only people present were Ms. Smith, who had been her teacher for close to five years, and her father— two adults who have committed significant time and resources into Angela's musical growth. The pairing of the safest social environment and the most demanding musical environment have created a fertile space for musical growth and exploration to occur without the social risk of being 'wrong.' Borrowing from Krashen's hypothesis, a low affective filter was maintained.

The use of the tuner provides an example of the convergence of musical and social risk in different settings. In the private violin lesson, Angela did not use a tuner. It was a time to develop her discriminatory "muscle." Subsequently, there was higher risk of musical error in the lesson. Conversely, risk of musical error was minimized at school because the tuners were present. This seemed appropriate however, as the school music environment was a place where being "wrong" carried with it social risk— a greater possibility of negative peer reaction—a high affective filter.

In the following interview question, Angela revealed that individual help from a teacher has the potential for negative social ramifications—to be perceived as favored without merit. The social ramifications are heightened in the school music setting due to the nature of the orchestra hierarchy and the belief that the more advanced players should be sitting further forward:

John: You just said that if the music teacher helped them individually that would be favoritism?

Angela: If it is like a group then, yeah, it looks a little bit like that. It's like "move up a couple of seats so you can hear me better." It makes you feel awkward, you know, like… I'm not actually this good. It's like, "Why am I sitting up here?", I'm not actually this good. It's mostly because my parents told the teacher to put me a little closer to the front or something. It makes you feel like so guilty. Sitting in front, if someone who is better than you is sitting behind you, it just makes you feel bad, you know? I get that feeling a lot like especially during PE because my mom is like "Don't push yourself too hard. It's okay, I talked to the teacher. " Well, then it means I'm getting a good grade for something I'm not really doing. When everyone else has to work harder for it then it makes me feel guilty. I never use that right. "Right." (Finger quotes).

Upsetting the accepted construct that advanced players sit closer to the conductor carries with it the possibility of negative peer response. Even if that accommodation is appropriate for Angela, the possibility of negative repercussions outweigh the desire for assistance in this regard. Viewed from Krashen's hypothesis, Angela is avoiding a high affective filter.

By refusing accommodation and accepting the advanced players forward construct, Angela is taking on the values of the ensemble. In one sense for Angela to become a genuine member she has taken the risk of not getting what she needs musically. In her situation this is acceptable because she is getting significant assistance outside of the ensemble in her private lessons.

Angela places a higher value on fitting in socially than on accommodations designed to advance her musically. This correlates with findings by Moss (2009), in which subjects

with vision loss reported that participating in instrumental music enabled them to develop an identity other than that of disabled. Justin and Angela's desire for "normalcy" could be interpreted as a positioning of themselves into an identity other than disabled, in these cases, a musician identity among peers participating in the ensemble.

Justin articulated an analogous belief to Angela's desire not to be favored:

Justin: I want them to treat me equally with the rest of the class because in life you know, you don't expect it to go easy on you.

John: Do you feel like your teachers treat you the same or go easy on you?

Justin: I feel like the teachers don't give any special attention to me, so I like that a lot.

John: How about in your band class?

Justin: Like in 7th grade, Mr. Smith would take the new people to teach, so they didn't give any specialty to a specific person.

Based on this evidence, Justin and Angela are making concerted efforts to be included. In some capacity they are willing to make sacrifices that may benefit their musicianship for the sake of inclusion, however, there may be negative repercussions to this mode of operation. Justin's desire to not receive special attention might actually impede a positive experience in some capacity. The following excerpt comes from an observation of Justin's concert band:

After class was over I was talking with Mr Smith, and I mentioned it appears that Justin's water key is broken—based on how much he was fiddling with it during the rehearsal. Mr. Smith said that there were problems with that instrument some time ago. Justin had reentered the room and was talking to a flute player. Mr. Smith

called over to Justin, "Justin come here." Justin moves into conversation proximity, "Is your water key not working again." Justin nods yes. "Bring it before class tomorrow and I'll work on it." The water key was broken yet Justin did not advocate for himself to have it fixed.

Is Justin's desire to not be included actually interfering with appropriate times to advocate for himself? Are his teachers attempting to normalize him in such a way that they are missing authentic needs as they arise? Are the choices to maintain a low affective filter, which ought to promote learning, having a reverse effect? No matter the answer, it might be interpreted as evidence of a hesitancy to speak up as a function of his desire to be "normal."

AUTHENTIC MEMBERSHIP: THE EPITOME OF INCLUSION

He fits right in because he's like every other kid, and this group is really good at bringing every kid in and not excluding them.
-Justin's teacher

The goals of students with disabilities participation in a typical education setting have evolved. However, at their core is the principle of normalization asserted by Wolfensberger (1972), which emphasizes living in a community, participating with typical peers and receiving an education in a least restrictive environment (Jellison, 2006). Jellison (2006) applies normalization to a music setting this way, "the principle of normalization is evident when culturally normative music experiences and activities are part of the routine in the daily lives of children with disabilities—regardless of the severity of the disability" (p. 262).

Alone, normalization does not ensure inclusion and positive social interactions, subsequently, normalization was expanded to include 'social valorization' (Wolfensberger,

1983). Valorization is evident when students with disabilities have "roles in music activities that lead to a decrease in negative stereotyping and an increase in the probability of positive perceptions, attitudes, and behaviors among persons without disabilities" (Jellison, 2006, p. 263).

Inclusion has deeper philosophical priorities than mainstreaming as outlined in chapter one, and valorization defined above. Chief among them, that all students, including those with disabilities, are participating members of the classroom, rather than simply attending a school with typically hearing students (Antia et al., 2002; Stinson & Antia 1999; Stinson & Kluwin, 2009). In a musical setting Jellison (2006) interprets the objectives of inclusion as one, "in which everyone contributes in a meaningful way and the outcome is musically satisfying to everyone in the group" (p. 268).

Based on Jellison's (2006) definition, Justin and Angela are prime examples of the philosophy of inclusion coming to fruition. Both are enrolled in general education classes in a school made up of typically hearing students. More importantly, as related to inclusion, they are participating members of their respective instrumental music classes. Beyond simply participating, they are being relied upon by other students to provide their part at a level that contributes to the overall whole. Unlike general education courses, their participation affects the quality of experience for the rest of their class and they are meeting the expectations of their teachers and peers for upholding the necessary level of contribution.

The venue of large ensemble instrumental music is an environment with increased risk, where being 'wrong' affects more than just one's own grade, particularly for those

with an aural impairment who may be the first 'target' for blame if the sound is not right. Angela and Justin are managing the increased risk just as their typically hearing peers are. As such, Justin and Angela have achieved authentic membership.

Their teachers view them as typical members of the ensemble. Some of the accommodations they utilize reinforce their membership. They have taken on the values of their ensembles in a classical tradition. They are coping with the risk associated with the ensemble in an authentic manner, and they are motivated to continue, as are their hearing peers, by their love of the repertoire played and by the relationships shared in their ensembles.

Teacher Perception

Both Angela and Justin's school music teachers perceive them as being more typical than atypical. These statements were presented in the context of social experiences. Angela's teacher reported with the same terminology as Justin's teacher above, as he recalled his impressions of a three-day orchestra festival tour. In these cases it seems that their ability to interact appropriately and meaningfully with their peers is uninhibited by their hearing loss.

Paralleling the teacher's view of Angela and Justin's similarity to the rest of their peers, is Justin's view that he himself does not have a disability:

John: Do you think of yourself as disabled?

Justin: No, because disabled means something you can't do. Obviously, I can hear.

Angela's orchestra teacher reported similar sentiments to Justin's band teacher as noted above. As the power in the room, their teachers normalized view of them

consciously or unconsciously teaches the rest of the class that they are fully participating authentic members.

Accommodations and Strategies Reinforcing Authentic Membership

Angela and Justin are distinct from the majority of their classmates because they have hearing loss. Strategies are in effect to accommodate for their hearing loss. The accommodations that assist them in participating simultaneously serve another purpose. They indicate assimilation into the group and verify Angela and Justin's social connection within the ensemble. In this way certain accommodations buttress authentic membership.

In Angela's case, the tuner is an important accommodation assisting her in achieving acceptable pitch performance. The rest of the class uses the same tuner during the orchestra class as well. If she were the only student to use it in the class it would reinforce her status as outsider. However, because she shares in using a tuner with the rest of her classmates, it actually reinforces that she is an authentic member.

Similarly, one of Angela's accommodations *is* a member. Sara, her stand partner, is one of her best friends and is at a similar skill level. Unlike Justin's situation Sara doesn't take responsibility for Angela, perhaps because both recognize that they are of similar musical skill. However, Angela does use her as a visual reference. In this capacity, Sara serves an accommodative function.

Sara, at the same time, is a social connector. Both in and out of the orchestra experience, their relationship is meaningful and important to Angela. Angela trusts Sara and is not afraid to make mistakes when sitting next to her. Sara promotes a low affective filter in Angela thereby increasing opportunity for meaningful learning.

Justin's main source of accommodation is modeling from his section leader. Justin graciously accepts the peer instruction. Daniel, the section leader, takes a more active role in assisting Justin by way of gesture and modeling within the rehearsal and has taken ownership of the role of peer teacher. Justin has actively obliged and is appreciative of the assistance, even seeking it out at times. In addition to Daniel's role as an accommodating agent he is simultaneously a bridge in achieving inclusion.

Although Daniel is not necessarily Justin's best friend, they do spend some time outside of rehearsal together. However, the vast majority of time together is in rehearsal. Within the active and time consuming experience of a high school band, rehearsal time is a significant percentage of time. One of Justin's music teachers provided insight into the role Daniel plays as a social connector:

> Yeah, I think he has a network of friends. There's a core of kids who are like totally geeked out with band, and then there's a group that is on the periphery, and I think he's in that periphery that has some link to the core but I don't know if it's solidified yet. Daniel is kind of a linking person to that.

Along with his classmates, Justin shares the experience of submitting to his section leader for instruction. The act of taking on the ensemble hierarchy is a way of "wearing" authentic membership in his concert band. Submitting to the hierarchy is also an indication of Justin's adherence to values of the classical tradition—the values of his concert band.

Adherence to Values of the Classical Tradition

Angela and Justin demonstrated authentic membership by taking on the values of the classical tradition. They engaged in critiquing themselves, identified and compared

themselves to others they took to be "serious" musicians, considered quitting because they did not meet their own standard for "serious musician," and submitted to the hierarchy of musical status associated with large ensembles.

Both students volunteered critiques regarding their own musicianship on several occasions. It is unclear whether such comments come from their own discriminatory competency or from the input of a teacher. In any case, Angela critiqued her rhythm reading, sense of intonation, and singing ability. I observed her teachers addressing the rhythmic and intonation components and she reported comments from her father and brother regarding her singing.

Similarly Justin perceived deficiencies in his own skill yet in his case it does not include influence from a teacher or other adult:

Justin: I don't really think I'm all that good at the instruments.

John: Has someone told you that before?

Justin: No, that's just what I think.

John: What makes you think that you're not very good at it?

Justin: Because sometimes I don't know the rhythm, I still don't know what 6/8 is. And also when I play trombone, when I try tonguing and also when I play, the air kinda gets messed up and so I play the lower note than the higher notes.

John: Does that happen a lot?

Justin: Yes.

John: Has someone told you that, or do you know?

Justin: I always know.

Critiquing oneself in relationship to an imagined level of perfection and in relationship to an ability to read the sheet music verifies the adherence to the classical tradition valued in their ensemble.

"I don't take it seriously"

Similarly, Angela and Justin compared themselves to the classical ideal in their own ensembles by comparing themselves to those students in the ensemble who have taken on the ideals to the highest degree. They characterized the significance of their own music participation virtually identically by saying they "don't take it seriously." This may be more of a statement of the amount they identify themselves as a "band member" or "orchestra member" than it is a measure of the personal significance they ascribe music because both are interested in knowing more about music and experiencing it. On their own initiative they both find and play music they have heard from non-school sources, download it from the internet, and play it.

Further evidence of their recognition of the classical tradition was their motivation to quit playing as Angela and Justin have both considered suspending their participation in school music. Angela was contemplating a pursuit of her growing interest in art as her elective as she moved into high school. Her seriousness about art has seemingly overtaken her seriousness in music. Subsequently, continuing in music would be betraying the tenets of the classical tradition which she has willingly adhered to.

Justin considered leaving his band at the semester break of this past year due to the demands of extra-curricular rehearsals typical of a marching band. Justin again recognized a tenet of the classical tradition, significant time in refining a composition. Input from his teacher, as well as the desire to remember his dear friend while participating, seemingly

tipped the scales toward continued participation. By implication, because he decided to continue playing, he has taken on the musician identity at a deeper level.

By critiquing themselves, identifying and comparing themselves to others they took to be "serious" musicians, and considering quitting because they did not meet their own standard for "serious musician," Angela and Justin's experiences parallel the experiences of typically hearing musicians.

Evan's (2009) dissertation investigating the psychological needs and social-cognitive influences on participation in music activities, used data from 104 subjects who had been taking part in a longitudinal study of Australian instrumental musicians. The study utilized survey and interview data collection techniques. One subject selected for interview named William was chosen because of his high involvement and high sense of ability while engaged in high school music, reported a "strong awareness of the ability of others around him, a feeling which he linked to the eventual feeling of a collapse in his ability" (p. 113). I believe this is similar to findings in the present study—Angela and Justin identifying and comparing themselves to others they took to be "serious" musicians,

Also of interest was William's "feeling which he linked to the eventual feeling of a collapse in his ability." I believe this mirrors the experience which both Angela and Justin have confronted. They each have reconsidered whether to continue their own participation, based partly on their beliefs about their own abilities in relationship to the "serious" musicians in the ensemble.

Further responses demonstrate a correlation to Angela's beliefs as William stated he "didn't want to be the person who gave up" (Evans, 2009, p. 121). Hearkening back to the chapter describing Angela's experiences, Angela wanted to be someone who stuck with

something she started. These experiences are evidence of Angela and Justin's similarity to their hearing peers, a foundation for authentic membership.

Repertoire and Relationship

Focusing on the relationship portion of repertoire and relationship, the literature review indicated students with hearing loss had a propensity for aloneness. In addition to the research from the deaf education community, Moss (2009) found that some students with vision loss participating in instrumental music attributed their lack of connection to their disability. Interview and observational data did not indicate that Angela nor Justin had a lack of social connection, and neither Justin nor Angela attributed social connection problems to their hearing loss. In this way it seems Angela and Justin's experiences are different from Moss's informants.

Angela and Justin maintained meaningful relationships with a number of individuals in their ensemble and, as addressed in other points in this study, had a close connection with a member of their ensemble sitting in close proximity. In Justin's case, the memory of a friendship with Alvin was a decisive factor in choosing not to quit band.

Parental Influence

Relationships with their families were also influential factors in their motivations. Both families began their child in instrument lessons while they were in their early elementary years. In comparison to the typical public school music student this is markedly earlier as instrument specific instruction often begins later in the elementary years. The early start demonstrates a commitment from both students family's to their music making. However they are unique from one another as Angela continued lessons, while Justin ceased after a few years.

Angela's parents have attended her weekly private lessons for the past five years. They also actively seek out experiences on behalf of Angela as she is interested in musical and non-musical interests. Her father completed graduate school and her brother will be attending college in the fall. Angela is making curricular decisions in high school for the sake of college.

Justin does not have the same level of parental involvement in his playing or in his future planning:

John: Do you think you'll play music after high school? Do you want to?

Justin: To be honest, I haven't thought that far into my life, it's kind of weird. In college, I don't know what it's like. I haven't been to an actual college, I've just heard about them and see what the campus is about. I just want to see how a college day is like, attend one of the classes, see how its like and then…

John: You've never been to a college before?

Justin: No.

John: Do you want to go to college?

Justin: Yes.

John: What do you think you'll want to study?

Justin: I have no idea, it's kind of a mystery.

In Justin's case, he facilitates the scheduling of lessons and attends them alone. Both families have committed financially to their child's musical growth, though due to responsibilities of providing income, Justin's mother does not attend lessons and has never met the private teacher. Conversely, Angela's private teacher, perhaps due to common ethnic and cultural factors, as well as the longstanding relationship, is a family friend.

A significant amount of research has studied the influence of parent(s) on a musician's early development. The seminal study by Sloboda and Howe (1991) revealed that persistent musicians generally come from parents who provide support and encouragement. Conversely, students who quit playing are likely to come from homes where parental involvement was low.

McPherson and Davidson (2002) revealed that beginning musicians need reminders and guidance from teachers and parents to develop the self-regulatory skills necessary to gain the personal initiative to practice. Parents are especially integral to the time in development where interest decrease or when self-regulatory skills have yet to develop. The authors posit that an important timeframe was toward the end of the first year of learning. At that time parents had begun forming negative judgments about their child's musical development and their support and encouragement decreased. Justin's experience resonates with these findings from McPherson and Davidson (2002) however the decrease in support and encouragement may not particularly be due to negative beliefs of musical skill, but simply due to Justin's mother's work schedule. No matter the cause, Justin's self-regulatory skill has not had the level of support necessary to develop, as evidenced by the non-existence of personal practice.

The study by Yun Dai and Schader (2001) substantiates Angela's experience, where they found parents of high level learners (students taking lessons in a conservatory type atmosphere) stressed the life enrichment and aesthetic qualities as intrinsic motivators for their child's participation in music. Recalling the quote by Angela's father as he underscored the importance of music in his life, one can see Yun Dai and Schader's (2001) themes emerge. Angela's father believed Angela's music participation was important

because it helped a person be "attracted to beautiful things" and that it is true of human nature that to "enjoy music."

Applying the corroborative evidence of Yun Dai and Schader (2001), the ideals within the environment in which Angela has been raised has significant similarities to those students who come from high level performance backgrounds.

Turning the focus to the repertoire aspect of repertoire and relationship, Angela and Justin had an affinity for the style of music played in their ensemble classes. Angela preferred dramatic music, especially from movies and Justin enjoyed what he termed classical music. The literature review revealed that individuals with hearing loss (including adults) enjoyed music. Lapka's (2005) study of an instrumental ensemble with a high concentration of students with disabilities found that these students enjoyed playing their favorite songs. Frisque, et al., (1994) and Darrow and Gfeller (1991) also learned that students with disabilities had an affinity for instrumental music. Data from this study corroborated those results. Further, these beliefs mirror typically hearing students. Drawing from narrative supplied by the same subject in Evans (2009), William stated "I like(d) music. And I really like (d) spending time with the people in it" (p. 123)—repertoire and relationship were factors in Williams motivation as well.

Perhaps serendipitously, William and Angela share more than just repertoire and relationship as factors contributing to their continued motivation. Recall that Angela was considering ceasing her school music participation due to an interest in art. William also quit school music classes for visual art—an artistic endeavor he found more satisfying. William explains the difference in his interest in art and music: "In art, I was being judged

as myself rather than being judged as this image of a musician or a music student or whatever, because my art works could actually be myself entirely" (p. 124).

Continuing with the theme of repertoire as a motivation for continued participation, Angela and Justin also did not stop with the repertoire provided for them in their classes. They both pursued music they heard in venues other than music class via the internet. Interestingly, the music typically had connection to their ethnic heritage. Angela wanted to play music she heard from Chinese cartoons she had been watching and found the music online. Justin downloaded sheet music of Korean folk songs and music he heard from YouTube channels to which he had subscribed.

One of the orienting questions was focused on Angela and Justin's motivations for continued participation in music. Data in both cases indicated that repertoire and relationships were important factors, research including students with typical hearing indicates these motivations are shared. The shared motivation of repertoire and relationship is another factor contributing to their authentic membership.

Authentic membership is a desirable goal for all students, and social/musical risks affect everyone in the ensemble. For Angela and Justin the stakes may be higher because of their hearing loss. Some of the issues they face in instrumental music are directly related to their hearing loss, and set them apart from their hearing peers. The next section highlights these issues.

ANGELA AND JUSTIN'S UNIQUENESS IN RELATIONSHIP TO THEIR HEARING PEERS

Intonation

The most significant challenge to Angela and Justin's musical performance is their sense of intonation. Both expressed reservations about their ability to discriminate the accuracy of their playing. In observations, Justin demonstrated the ability to match pitch on his trombone when pitch was modeled by his section leader and his teacher. Justin's acoustic hearing seemed to provide him with enough pitch discrimination capability to make necessary adjustments while performing and rehearsing, support for the findings of Ford (1988) and Gengel (1969). Justin's training on trombone for approximately 20 months may also have had an effect on his ability to discriminate, corroborating evidence by Darrow and Starmer (1986), suggesting that music training can increase students' abilities in this area.

Conversely, Angela in private lessons and in orchestra class used visual input from her teacher (gesturing up or down) and a tuner to make adjustments in intonation because of her hesitation in relying on her aural discrimination ability. This reluctance supports the research indicating CI users experience difficulty in discriminating pitch (Gfeller & Lansing, 1992; Looi & Radford, 2011; Spitzer, Mancuso, and Cheng, 2008; Veekmans et al., 2009).

Benefits of Instrument Choice

The instruments Angela and Justin play have similarities for the student with hearing loss. Although one is in the string family and the other brass family, they are both playing instruments without inherent physical characteristics that separate individual pitches. A piano has a single key for a single pitch, most woodwinds use a set number of fingers to achieve a specific pitch, the frets on a guitar indicate where notes are separated

from one another. Conversely, neither the violin nor the trombone has any such physical distinction. Subsequently, these instruments may be perceived as being more difficult than other instruments where the pitches have inherent delineations, when it comes to aspects of intonation.

There are however, advantages to the violin for the student with hearing loss. All the physical components necessary to its playing can be seen, the right hand and bow, the left hand and fingerboard are all visually accessible. With the addition of colored tape on the fingerboard, as is often customary to reinforce finger placement, many of the essential components of physical technique are accessible to the eyes. Further, the vibration through the chin rest provides additional vibrotactile input to the player. The data here corroborates research conducted by Korduba (1975), Roelofs and Zeeman (1949), Rileigh and Odom (1972), Squires (1982), and reinforces the notion that vibrotactile stimuli (such as a violin) has advantages in improving rhythmic capability (Darrow, 1987; Darrow, 1992; Darrow & Goll, 1989; Gfeller & Baumann,1988).

The literature review revealed that adult CI users seem to prefer lower pitched tones, demonstrating increased accuracy in discrimination tasks that use tones below middle-C or when sung by a male voice (Gfeller et al., 2002; Looi et al., 2008; Looi & She, 2010; Pijl, 1997; Zeng, 2002). Angela plays an instrument that primarily plays above the pitch threshold established by the above studies. Earlier in the learning process, the violin plays in the first and second position with pitches that tend to be lower than those that are played with higher hand position on the fingerboard. In essence, the younger the student, the lower they play. As they musically mature, the range in which they play ascends—moving further from the tonal preference. Confirming this sentiment, Angela describes the

notes she plays in fifth position as "screechy." Lastly, open strings provide an advantage as, once tuned, they can be relied upon for acceptable intonation. For the first few years of violin learning, open strings and limited fingerings in first and second position are the predominant pitch generating aspects.

The trombone has similar visual advantages. Unlike many wind instruments, important components are in full view of the player, namely the slide and bell. The bell may act as a reference point with which the player may judge the position of their slide to achieve the position necessary for the desired pitch. A challenge in playing trombone—as with any brass instrument—is that the tone generating components are all, in essence, invisible. The tongue, air, and vibrating lips are hidden by the closed mouth or the mouthpiece pressed on the players lips. Furthermore, multiple pitches can be played in the same slide position.

Lastly, both violin and trombone are instruments whose tone sustains. Unlike percussion instruments which strike an instrument to create an initial tone with a rapid decrease in sound, giving the sense of an "empty beat," the bowed violin and trombone play "filled in beats" by creating tone that sustains. This type of instrument has advantages, as subjects in both Roelofs and Zeeman (1949) and Squires (1982) demonstrated greater accuracy in discriminating tasks utilizing "filled in" beats rather than "empty."

With both violin and trombone, intonation has the capacity to be most problematic due to the lack of inherent physical demarcations to indicate separation between pitches. However each has advantages over other instruments due to its vibrotactile input and ability to be seen while in the act of playing. It will be interesting to see how Justin and

Angela manage the demands of more difficult repertoire which necessitate minor adjustments to refine pitch that are ever more reliant on their discriminatory capability.

SUMMARY

From the interpretation of data in Angela and Justin's experience emerged three themes. The first, an interplay between environments of social and musical risk provides a lens with which to view the environments in which Angela and Justin participate in instrumental music. In Angela's case she is in two environments with complimentary levels of social and musical risk. Her private lessons are low social risk and high musical risk. Her orchestras, while still somewhat challenging, are not at the same level as her private lessons. Subsequently, the orchestras are arenas of high social risk but of low musical risk. The inversely proportional levels of risk promote high levels of inclusion and the capacity for maximum music learning.

The second theme, authentic membership in the context of instrumental music, described the way in which Angela and Justin have achieved authentic membership in their respective ensembles. This has come to be for several reasons: (a) their teachers view them as "normal;" (b) the accommodations and strategies that are in place reinforce their membership rather than setting them apart; and (c) they adhere to the ensembles' values in the classical tradition.

While Justin and Angela share many commonalities with their hearing peers there are aspects of their experience which are different, namely, the difficulty intonation presents to their musical experience and the propensity towards a higher affective filter as the nature of their disability is managed during music participation.

CHAPTER 7: CONCLUSION AND IMPLICATIONS FOR PARENTS, EDUCATORS, AND RESEARCHERS

This investigation began from the standpoint that children with hearing loss are unique, and face challenges in regards to communication, education, music education and a sense of social connection when in a learning environment with typically hearing students. While not downplaying the challenges that Angela and Justin face, they are examples of students who are authentic members of an instrumental music ensemble. As the parent of a child with hearing loss, and as a music educator, I am encouraged that there are students with hearing loss learning music as part of an ensemble. One byproduct of which for Angela and Justin is positive social connection. Based on the data uncovered through this investigation, the following chapter provides implications for educators, parents and researchers.

Implications for Parents

Necessity of Hearing Technology for Participation

While the data does not reveal with certainty, it appears based on their level of hearing loss that without the use of an assistive device, both Angela and Justin would not be able to participate in music at their levels. These two cases are evidence of students who, by using hearing aids or cochlear implants, are able to engage with music making in a general education instrumental music environment. The results of this study suggest positive outcomes for Angela and Justin in regards to social connection, group membership and musical enjoyment and participation. At some level, the outcomes were a result of these students' families choosing hearing technology for their child. For parents of a child with hearing loss facing a decision of whether to use hearing technology, if musical

experience is a desirable outcome and the social connection it can provide, then the choice to resist the use of hearing technology may limit these benefits.

The Perceived Benefits of Acoustic Hearing

The literature review indicated acoustic hearing is preferable to hearing provided by a cochlear implant. I inferred then, because Angela did have some residual acoustic hearing up to this past summer's second implantation, that the acoustic hearing may have provided her with some acoustic foundation. She indicates though, that the transfer to fully electric hearing was actually a positive effect on her localization capability:

John: Did music sound different to you after the second implant?

Angela: Like I can't say I remember a huge difference.

John: Uh-huh.

Angela: And I can't say I still hear— that I hear a huge difference. Yeah. Because I was always using an implant to listen most of the time in the first place.

John: Right.

Angela: Easier for me to hear direction like where the music is coming from.

Also, it was clear that the implanted ear had been the dominant ear for quite some time.

Angela: because this ear was so dominant, I barely noticed when this one was on (pointing to right ear—the side with the hearing aid.)

John: I see.

Angela: So when I turned it off, because it ran out of battery, I never noticed at all.

While some research (Looi & Radford, 2011) does indicate that acoustic hearing is preferable, the level of acoustic hearing is an important variable in determining the advantages it provides. In Angela's case, it seemed to provide negligible advantages.

If a parent finds themself in a situation where the decision to choose cochlear implants arises there may be an understandable hesitancy. Angela's case provides some evidence that, based on the severity of her hearing loss, cochlear implants offer more accessible aural input for the sake of musical participation. Parents may take this into consideration as they choose to pursue implantation.

Educators ought to be heavily involved with each student's specific hearing information. If a student is bimodal, assuming the ear using the hearing aid is the dominant ear may be mistaken. They should consult the student's audiograms and seek out the assistance of an audiologist or other hearing professional to help interpret the results.

Benefits of Early Music Experiences

Angela and Justin both benefited from early parental support, although the kind and amount were different. The music learning experiences in their early elementary years were private lessons on a specific instrument and facilitated by their parents. These early experiences prepared them, to varying degrees, for their school ensembles giving them a advantage as they entered beginning instruction in a group setting. Parents would be advised to provide early experiences like Angela and Justin had to facilitate a smooth transition into ensemble playing.

Implications for educators

With regard to how I have changed, I think I'm mainly just more aware of his hearing difficulties and tendencies, (I) have been focusing on strategies that I think will really benefit him, which I'm actually doing with the entire class.
Instead of just applying that understanding to him, though, I've really
been applying it to the class as a whole…which will really help everyone improve.
-Justin's Band Teacher

Good teaching practice for children with disabilities is often simply, good teaching practice. What "works" for students with hearing loss may worthwhile in many musical situations with typically hearing students. As Jellison (2006) states, "much that we already know about music learning is applicable to children with and without disabilities" (p. 258). This seems to be the implications gleaned from much of the data in this study. Angela and Justin shared many motivational and social aspects with their typically hearing peers.

The following section contains suggestions for music educators in teaching students with hearing loss and comes from the data uncovered in this study.

Musical Capability

It appears that acceptable levels of musical capability are integral to authentic membership. Angela and Justin could contribute at acceptable levels within their ensemble, which gave them access to the social fabric of the ensemble, and it developed their identity as musicians. Evans (2009) describes this concept in negative terms describing the result of a student who, in a sense, "falls out of capability:"

> William began to feel a "collapse in his ability" compared to the others around him, an increasing sense of social disconnection which arose from the incompatibility of his developing identity with the social environment of the school and a strong feeling that music was no longer something he had ownership over."

Subsequently I would urge music teachers to be mindful that students are placed in an ensemble within their musical capability. In a situation that is above their musical capability, negative affects due to the result of a high affective filter could spread to their sense of inclusion and threaten the chance of their continued participation.

Individual Education Plan

The literature review revealed that instrumental teachers were generally not involved with the IEP process, although recent research indicates there is improvement in this area. Angela's orchestra teacher is a positive example of this. As I arrived for our first meeting, he was waiting for a parent to arrive for an IEP meeting, along with the principal and other teachers.

Our interview revealed that he had a copy of Angela's IEP, but was not aware of significant changes to Angela's hearing status (e.g. her second implantation) since the printing of the IEP at the beginning of the school year:

> John: This (IEP) was issued from the beginning of this school year. So, she had a second implant this last summer.
>
> Angela's orchestra teacher: No, the other student. Angela only has the one.
>
> John: She has a second one--she had a second one this summer.
>
> Angela's orchestra teacher: Oh?!

The orchestra teacher views Angela as a typical student, mentioning on several occasions that she is just like every other kid. While this perception may alleviate a sense of "favoritism" as Angela referred to it, it may also hinder meaningful understanding of Angela's needs and inhibit a dialogue regarding worthwhile accommodations, strategies or simple adjustments to assist Angela's experience.

The orchestra teacher's lack of accurate information might alert other music teachers that IEP's may not be current, and teachers may need to be proactive in gathering accurate information of students hearing conditions for the sake of more informed curricular choices.

Waterproofing

Angela and Justin both referred to the way that the inability of their hearing apparatus to get wet was a negative aspect. Recall Angela's experience in her outdoor science camp and the way she missed some communication with the teacher and students. Justin expressed similar sentiment:

> Justin: The only thing I hate about the hearing aid is that it's not waterproof. That's the biggest issue for all hearing aids. If they were able to make waterproof hearing aids, then it'd be perfect.
>
> John: How has that caused you problem?
>
> Justin: You know how some people play with water guns, water balloons, I always have to take them off to make sure they don't get damaged. Sometimes I occasionally swim, but I kind of hate swimming because of these.

While water and music learning aren't typically combined, there may be moments on a tour or during a team building activity that water may be encountered. Teachers will need to use caution when incorporating water into activities; it may limit the ability of a student with hearing loss to take part in meaningful ways.

Instrument Choice

Assisting a student with their choice of instrument is an important one. Being attentive to not only a student with hearing loss preference for instrumental tone, music

teachers and parents should be cognizant of steering the student toward an instrument with ample visual input.

The violin has inherent properties that are beneficial to Angela in this regard. Foremost is the prevalence of vibrotactile and visual information to assist in playing. Angela is able to feel vibration through the chin rest and is able to see the hands of those around her modeling both bowing and fingerboard technique. Similarly, of all the wind instruments, the trombone is quite accessible to the player's sight line. This gives Justin an advantage as he is able to see the location of his positions in reference to the bell of the trombone.

The violin also brings with it certain positive aspects in regards to identity. Violin in an orchestral setting is typically the most abundant instrument. In Angela's experience, the violin acts as a connecting agent. She shares this with the largest subgroup within the orchestra which means she is like the largest subgroup, diminishing her other status. Furthermore, the violin is the most virtuosic instrument in the setting—it is at the top of the hierarchy in a classical tradition. Playing violin places Angela at the top of this hierarchy as well, giving her preferred status and diminishing her "other" status.

Accommodations that Promote Inclusiveness

When planning for accommodations, attempt to make the accommodation a classroom-wide policy so as not to bring greater attention to the student with hearing loss. The most preferable situation is one that the entire class may use, thereby decreasing the focus on the student with hearing loss, downplaying their differentness, something both Angela and Justin desired. Mr. Smith's quote at the beginning of this chapter provides a

glimpse into the positive affect an accommodation can make on an entire class, not just the student with hearing loss.

Angela's clip on tuner was one such accommodation. These tuners could be used on most any instrument and provide the student with hearing loss visual information regarding their individual intonation. Teachers should take care in giving students individual instruction, attempting to provide the same quantity of instruction as others in the class. Bringing attention to the student by either ignoring an issue or by spending a disproportionate amount of time with them may be counterproductive.

Cultivate Environments that Promote a low Affective Filter

Be mindful of the level of ensemble the student is placed in. Avoid placing the student in a musical situation they are not prepared for. Insure ample one-on-one instruction before placing the student in a group setting where individual instruction decreases. Both Angela and Justin had preparation before they entered music learning in a group setting. These early experiences prepared them to some degree for their school music learning. The overarching lesson here is that preparatory experiences are valuable for a student with hearing loss before encountering musical 'problems' in a group setting that has the capacity to raise their affective filter.

Another important aspect in the experiences of Angela and Justin was the presence of a peer who served both musical and social purposes. If possible, facilitate peer instruction with a student in close proximity, preferably with a student where a relationship is already active, where the relational trust can then be applied to the music classroom.

Inclusive Environments

The literature review found that instrumental music students have been perceived as the as the most challenging arena of music education to include students with disabilities (Atterbury, 1986; Gfeller et al., 1990). Hourigan (2009a) goes further than the numbers to describe the isolation and seclusion of a student with disability in an instrumental music classroom.

Both Angela and Justin were in school environments that on the whole were highly positive toward their inclusion. Every school music teacher in the study made mention of their perception that the students in Angela and Justin's class, in addition to their school as a whole, were positive toward inclusion. Angela and Justin both enjoyed their school and school music experiences partially due to the support they felt from their teachers and the camaraderie they felt with their peers.

For example, an issue that Hourigan (2009a) makes mention of was not present in either case. Hourigan (2009a) cautions that taking a music group into a different context, such as a festival, trip, or travel, is an especially precarious time for a student who may be unique from the majority. These types of situations have the potential to create a "synergy" around negative behavior where it can be "cool" to exclude individuals, as evidenced by hazing practices. In these new situations, opportunities for aloneness are exacerbated. This was not the experience for Angela and Justin.

Angela and Justin both mentioned the trips associated with their performing group as highlights of their experience. For Justin, travel to marching band competitions was one of the formidable events in establishing meaningful relationships with those in his section. Angela's trips to festivals which required bus and airplane travel, were instrumental in

cementing her status as a member in the social fabric of the orchestra. I would suggest, based on Angela and Justin's experience that well organized performance trips may be vitally important to the successful inclusion of a student with hearing loss.

Findings in Relation to Earlier Research

Results of this study are synchronous with Moss (2009) findings in which subjects with vision loss reported that participating in instrumental music enabled them to develop an identity other than that of disabled. Angela and Justin both made choices that moved them closer to a musician identity as established by the values within their ensembles. An overarching result of Moss (2009) study was the similarity in motivations between typically seeing students and students with vision loss (Evans, 2009; McPherson & Davidson, 2002).

Deaf education research revealed the sense of disconnect with peers that students with hearing loss may have when attending school in a general education setting. Deaf students in an inclusive environment report an absence of close friendships (Antia, Kreimeyer & Eldredge, 1994; Stinson, Whitmore, & Kluwin, 1996), sense exclusion from the social life of their school and social community (Angelides & Aravi, 2007b), and feel more emotionally secure and more accepted in relationships with others of similar hearing capability and language development (Foster, 1989; Stinson & Whitmore, 1991). Results of this study seemingly do not confirm those findings. Both Angela and Justin did have close friendships in their music ensemble. The extra-curricular nature of secondary instrumental ensembles also provides a venue into the social life of the school and both students were engaged in those aspects of their instrumental music experience. Lastly, they felt emotionally secure with individuals in their music classes. It is interesting to note

that the research indicated deaf subjects were more secure and accepted in relationship with similar hearing capability and language development. Although Justin and Angela are both deaf, their hearing technology in some respects makes up the difference providing them similar status in hearing capability. Although subjects in Darrow (1999) were not exclusively hearing impaired, the results of this study confirm Darrow (1999) where music teachers perceived students with disability "fit in" to the social group within their music class.

Previous studies revealed music teachers generally sense a level of discomfort when working with students with hearing loss, including; Darrow and Gfeller (1991), Frisque, Niebur, and Humphrey (1994), Gfeller, Darrow, and Hedden's (1990), and Wilson and McCrary (1996). The music teachers that were involved with Angela and Justin did not demonstrate or report any discomfort. To the contrary, they were highly supportive and desired to create the most effective learning environment possible for their students with hearing loss.

Angela and Justin's affinity for instrumental music corroborated with reports of subjects with disabilities in Lapka (2005), Frisque, et al., (1994) and Darrow and Gfeller (1991).

Difficulty with intonation for both students confirmed research that indicated it would be problematic for individuals with hearing loss, especially cochlear implant users (Gfeller & Lansing, 1992; Looi & Radford, 2011; Spitzer, Mancuso, and Cheng, 2008; Veekmans et al., 2009).

The benefit of vibrotactile stimuli in the instruments used by both students, but specifically the violin, corroborates research on its positive affects (Darrow, 1987; Darrow,

1992; Darrow & Goll, 1989; Gfeller & Baumann, 1988; Korduba, 1975; Roelofs & Zeeman, 1949; Rileigh & Odom, 1972, Squires, 1982).

Previous research with adult CI users indicates a preference for lower pitched tones and increased accuracy in discrimination tasks with sounds below middle C (Gfeller et al. 2002; Looi et al., 2008; Looi & She, 2010; Pijl, 1997; Zeng, 2002). Angela reports similarly, the higher she played the more "screechy" the tone became, a sound she did not prefer. Conversely, she did enjoy the full tone of the entire orchestra playing, especially the "whoosh" of the cellos and basses.

Suggestions for Future Research

This study sought to investigate the experiences of students with hearing loss participating in instrumental music. Further research applicable to students with hearing loss in the specific domain of instrumental music should incorporate students with characteristics in addition or unique from Angela and Justin. For instance: What are the experiences of students with hearing loss who communicate manually in an instrumental music setting? How are their experiences different from students like Angela and Justin who communicate orally?

What may also be of interest are cases that are not as successful in their inclusion, and studying the factors that relate to the lack of success. Are the factors that, in this investigation seemed to be influencing the positive outcome, missing in the unsuccessful case? How would the experience of a student with hearing loss be different if they did not have the preparation Angela and Justin did before entering their school ensemble? How would the experiences of students with hearing loss be different if they were in an environment of teachers and students who did not value inclusion? Moreover, what about

the experiences of student who are not, at some level, choosing music participation; for instance, in an elementary music class?

Further investigations might also take into consideration the type of instrument played by students with hearing loss, and students who were involved in school music but have since graduated yet continue to participate in instrumental music. Studies varying methodologies and data gathering techniques would also enrich this line of study, for instance focus groups might provide further opportunity to glean the differences and similarities within this population of students.

Following up with Justin and Angela in the future, perhaps as they are in their later high school years, to revisit the themes from this investigation might provide further data for their support or suggest changes. It will be interesting to see if Angela ceases participation as she progresses to high school. Does she seek out other venues for group performance? Does she continue with her 'solo' music participation? Does she quit playing all together? What are the ramifications, musical and social, of those choices?

Turning focus to the parents of students with hearing loss, another interesting question might investigate the difference in priorities and desired outcomes of parents whose student with hearing loss participates in music when compared to parents with typically hearing child. Both Angela and Justin were using technological assistance to access sound. Comparing their experiences to students with hearing loss, who are not utilizing the same hearing assistance in an instrumental music setting, would be fascinating.

Lastly, a unique investigation might analyze the motivations of other populations with disabilities with regard to motivation, to compare with Moss (2009) and the current

study's findings, which found repertoire and relationship to be influential factors in participation, a characteristic that is shared with typically hearing students.

Coda

Many studies indicated music teachers generally sense a level of uncomfort when working with students with hearing loss, including Darrow and Gfeller (1991), Frisque, Niebur, and Humphrey (1994), Gfeller, Darrow, and Hedden's (1990), and Wilson and McCrary (1996). The results of this investigation into the experiences of two students participating in instrumental music who demonstrate genuine membership in their ensembles, and who are offering age and developmentally appropriate musical contributions to their teachers and peers, ought to partially waylay the discomfort indicated in the aforementioned studies.

The above studies did not indicate the communication style of the students with hearing loss, of which the teacher's feelings were built. Based on the data from the experiences of Angela and Justin, I would surmise the reticence of music teachers to work with students with hearing loss may be based more on difficulties in communication than atypical hearing levels. Perhaps the students with hearing loss those teachers had come in contact with were communicating predominantly by sign language. Assuming the teachers themselves did not sign, the communication barrier may have been the catalyst for the hesitation. Angela and Justin both communicated verbally and did so with a competency that the comprehension of their speech was a not an issue. Their ability to communicate verbally may be a significant factor in their positive experience.

It was most likely not simply a common communication style that was the foundation for the success in each case. More likely, it was the combination of many

factors. The following is a list of hypothesized aspects which may have contributed to the success of Angela and Justin's experiences.

- Early support from family translated to private instruction at an early age which provided some preparation for a group music setting.
- The larger environment in which their experiences are set, the school and the ensemble, are generally made up of peers who were positive forces for inclusion.
- Their music teachers were committed to providing positive social and musical experiences.
- They played instruments with advantages in their visual accessibility and vibrotactile input.
- There was a strong presence of at least one meaningful personal relationship in the ensemble.
- They took on the values of the ensemble in a classical tradition.
- They were able to perform at a level where musical contributions to the group were meaningful.

The cases of Angela and Justin seem to indicate that instrumental music at the secondary level is an option for students with hearing loss. Recall from chapter three, the process of garnering participants for this study through a large instrumental music teacher organization resulted in very few meeting the criteria. It may not be surprising then, that these two students are by inference successful, because, had they not been successful, they would no longer be participating in instrumental music.

Angela was regarded as the "perfect ensemble member" by her orchestra teacher and Justin as a "gracious student" whose improvement in 18 months afforded him participation in one of the school's bands. Not without their challenges, doubts and struggles, Angela and Justin bring us two unique sets of experiences with which to understand. While it was not the intent of this study to locate success stories per se, it seems that the two students here have found enjoyment and authentic membership in music participation in a way that participation is worthwhile, even if they do not hear what the typical student hears. In my interpretation, that is successful.

Simply being enrolled with typically hearing students does not assure that students with hearing loss benefit from the interaction with their peers. There is a deeper value and desire that I have as a father of a child with hearing loss for my son than to simply sit next to other students—I hope he is an authentic member. I desire for him to be known, to be valued, to contribute to the lives of his peers, and to receive from his peers. I desire that for all students with hearing loss. It appears that in the experiences of Angela and Justin, the medium of instrumental music education was a venue for this level of inclusion— authentic membership.

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APPENDIX A

IRB APPROVAL

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Bureau of Educational Research
College of Education
38 Education Building
1310 South Sixth St.
Champaign, IL 61820

March 20, 2012

John Burdett
Music Education Department
College of Education
1310 S. Sixth Street
MC-708

Dear John,

On behalf of the College of Education Human Subject Committee, I have reviewed and approved your research project entitled "The Experiences of Students with Hearing Loss in Instrumental Music Education". I find that this project meets the exemption criteria for federal regulation 46.101(b)1 for research involving normal educational procedures within an educational setting where the identifying information is protected. It also meets the exemption criteria for federal regulation 46.101(b)2 for research involving normal interview procedures where the identity of the participant is protected.

No changes may be made to your procedures without prior Committee review and approval. Your project number is 5033 and projects are typically approved for three years with annual reports required. You are also required to promptly notify the Committee of any problems that arise during the course of the research.

Best regards,

Anne S. Robertson
College of Education Human Subjects Review Committee

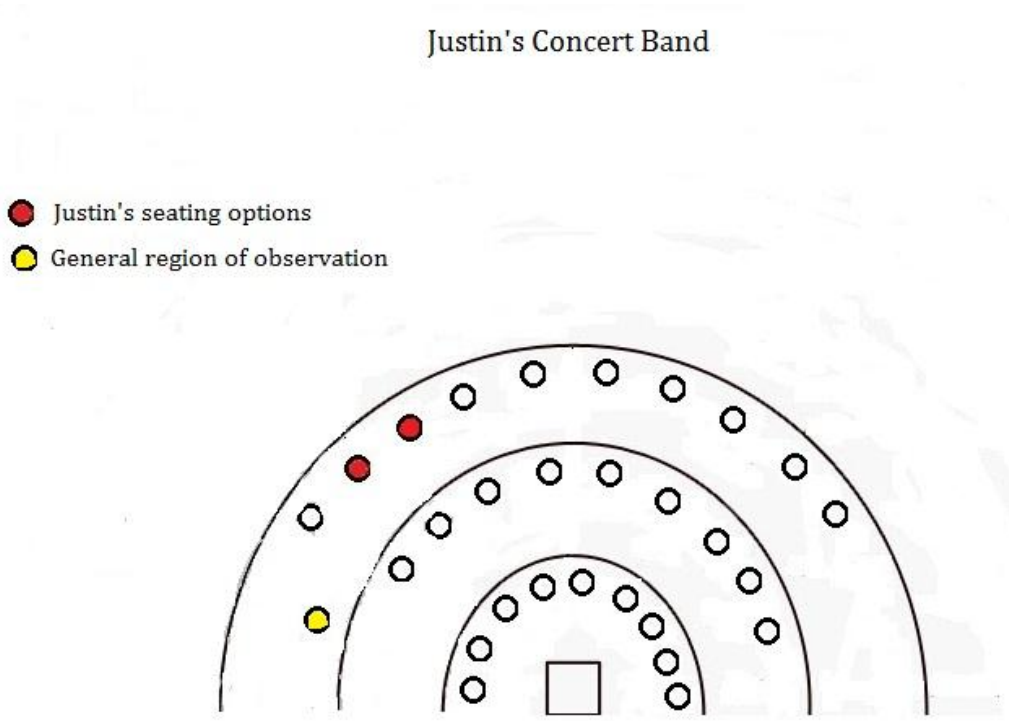
Cc: Dr. Eve Harwood

telephone 217-333-3023 • fax 217-244-0538

APPENDIX B

JUSTIN'S DOCUMENTS

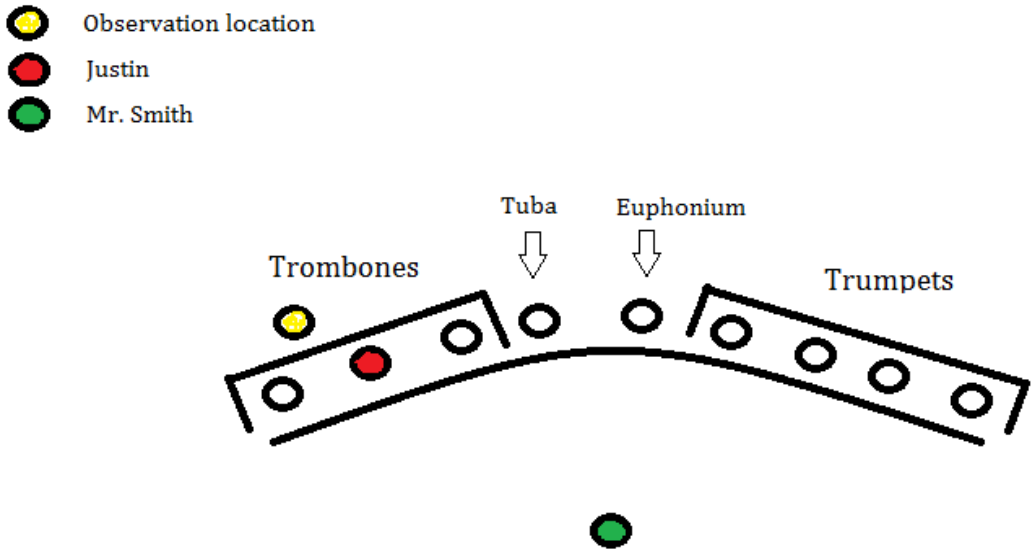
JUSTIN'S CONCERT BAND SCHEMATIC



APPENDIX B, cont.

JUSTIN'S BRASS SECTIONAL SCHEMATIC

Justin's Brass Sectional Setup



APPENDIX B, cont.

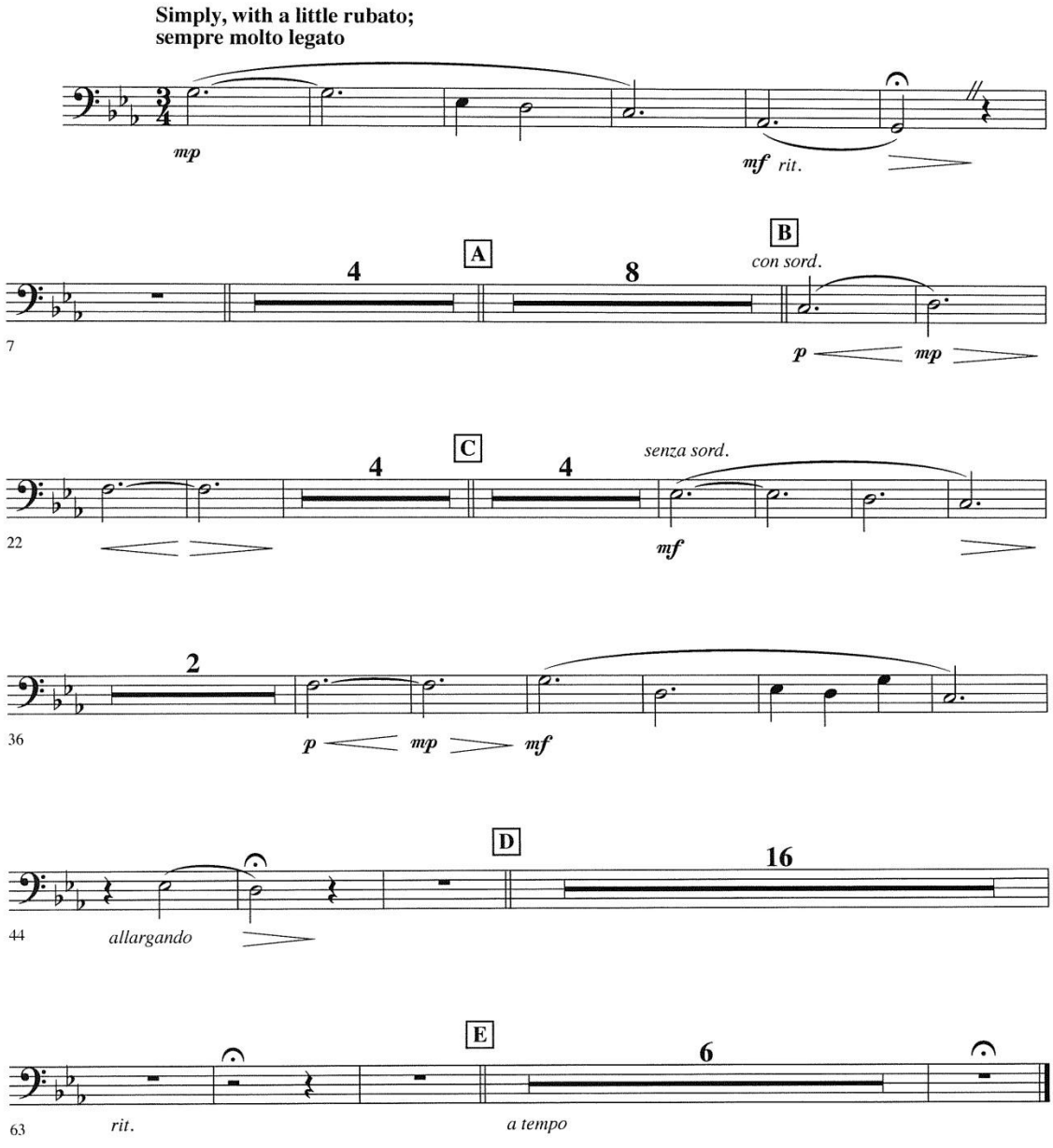
EXAMPLE OF MUSIC JUSTIN PLAYS IN HIS CONCERT BAND

THE SEAL LULLABY

Dedicated with love and gratitude to Stephen Schwartz

BASS TROMBONE

Music by ERIC WHITACRE



APPENDIX B, cont.

EXAMPLE OF MUSIC JUSTIN PLAYS IN HIS CONCERT BAND

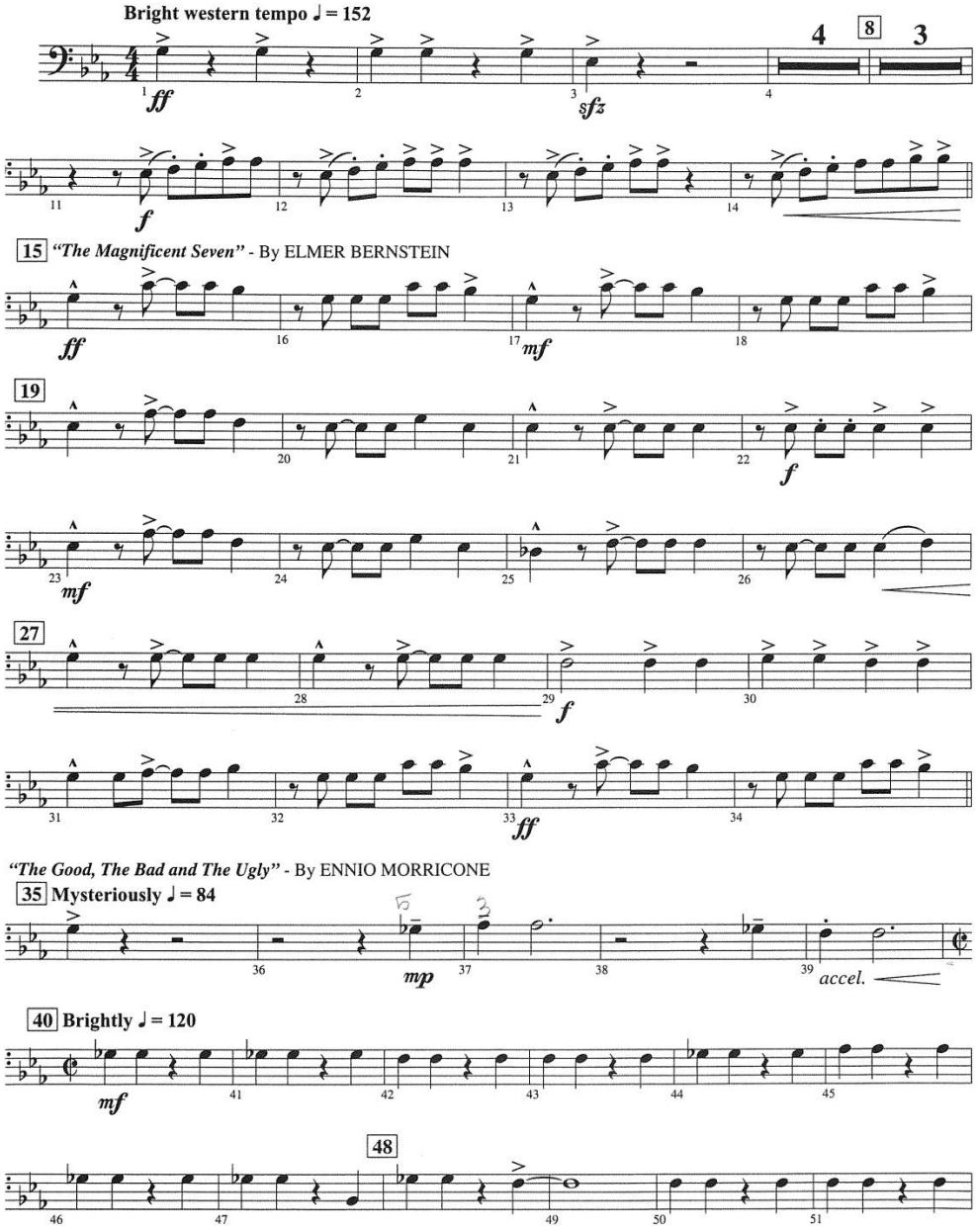
GO WEST!

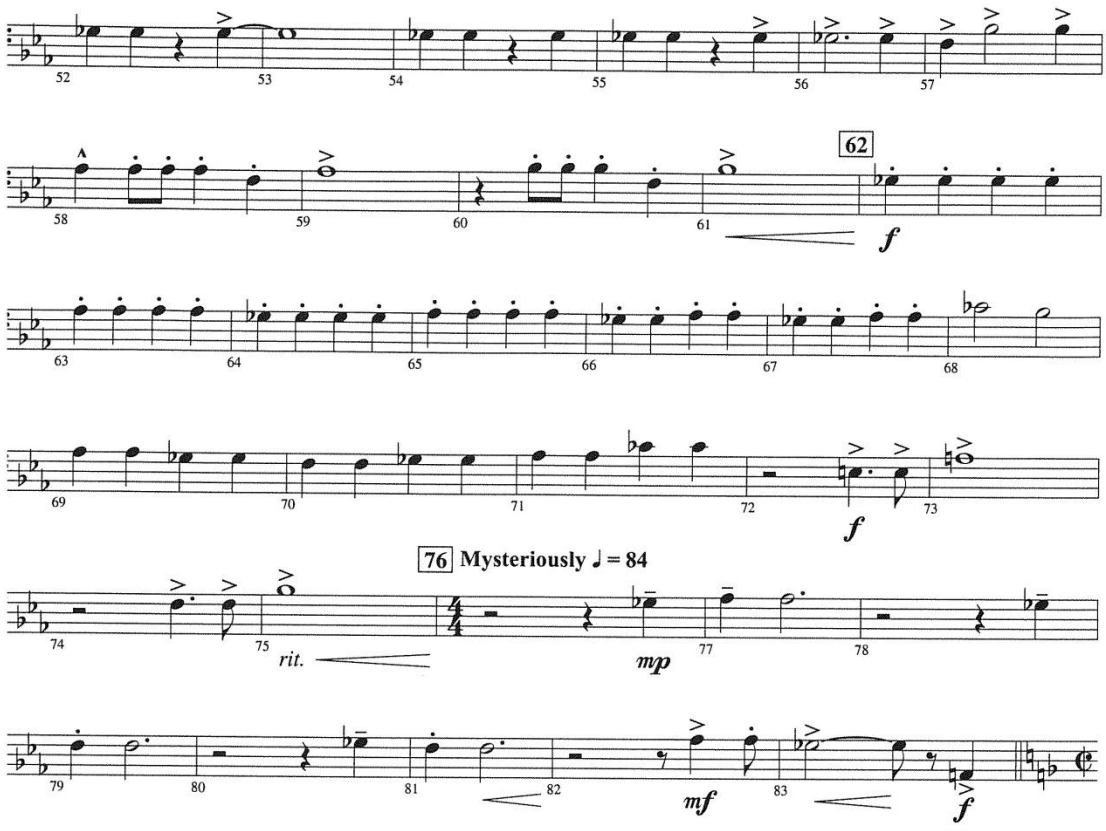
Featuring THE MAGNIFICENT SEVEN;
THE GOOD, THE BAD AND THE UGLY; and HANG 'EM HIGH

1 TROMBONE

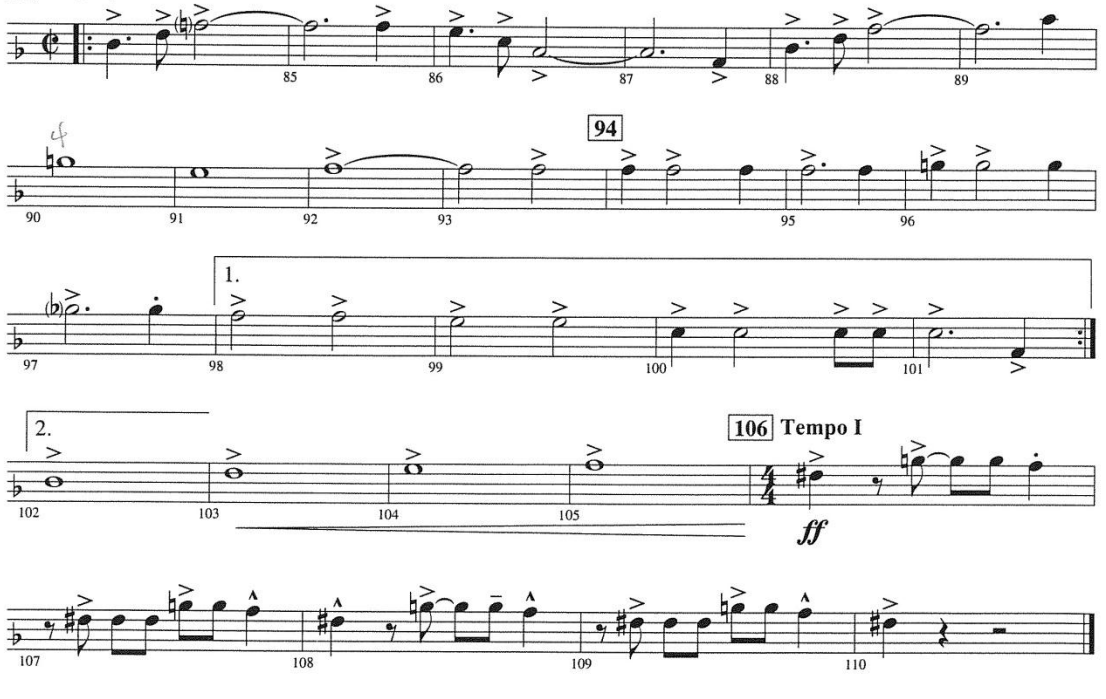
Arranged by RALPH FORD

Bright western tempo ♩ = 152





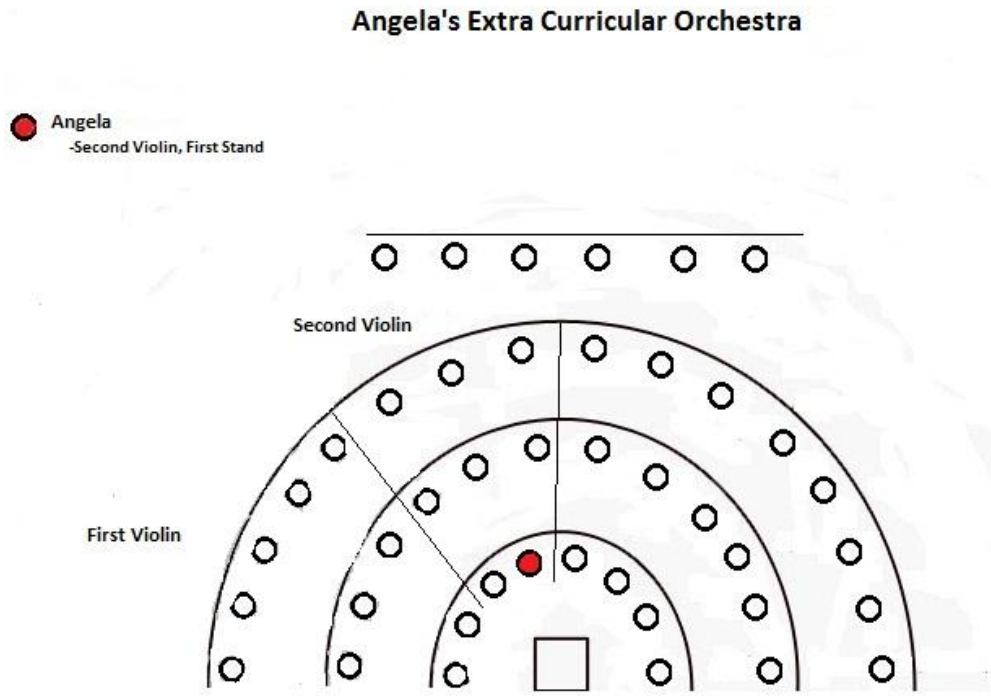
Hang 'Em High" - By DOMINIC FRONTIERE



APPENDIX C

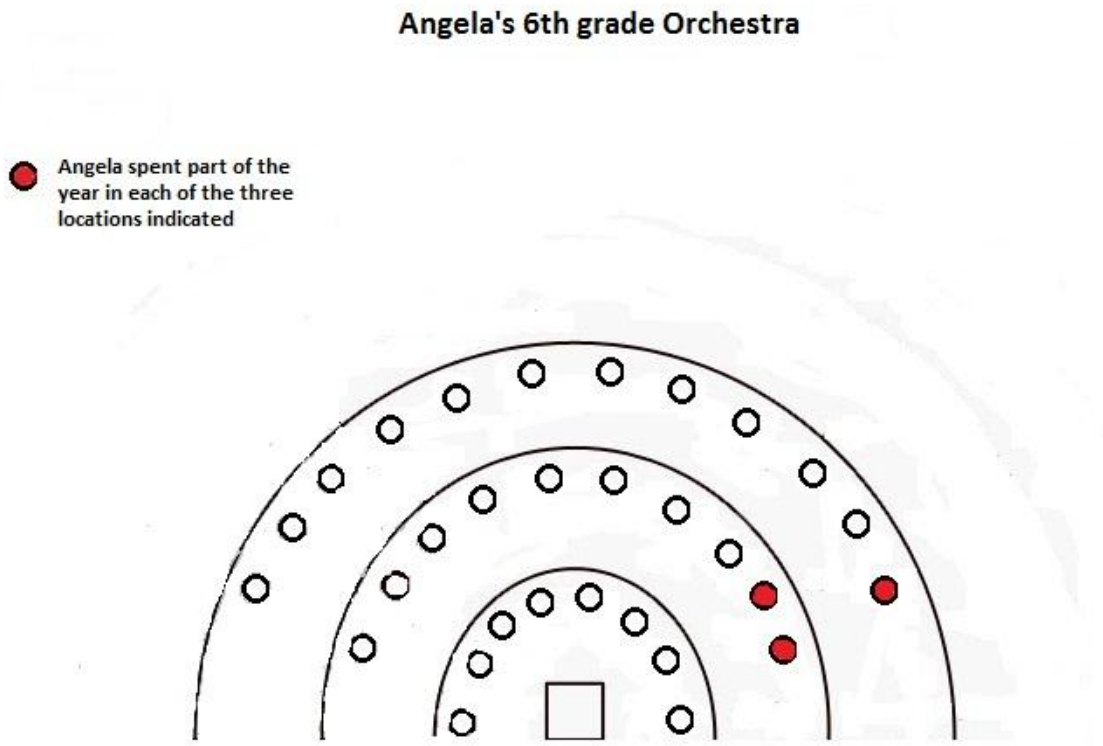
ANGELA'S DOCUMENTS

ANGELA'S PRIVATE EXTRACURRICULAR ORCHESTRA SCHEMATIC



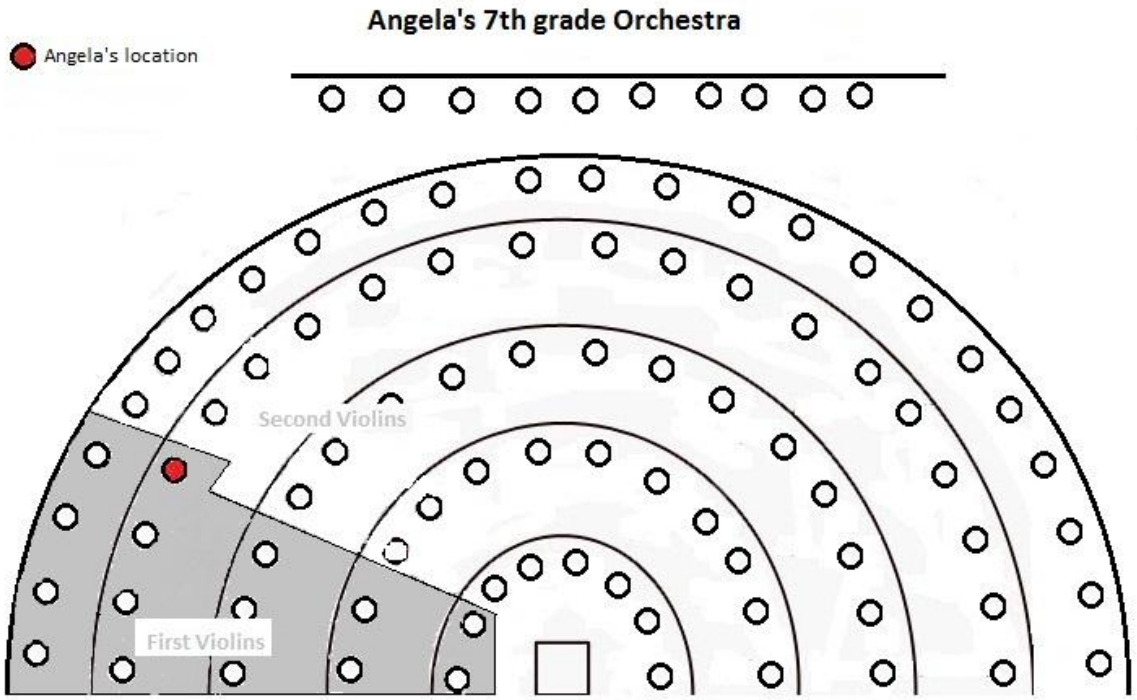
APPENDIX C, cont.

ANGELA'S 6TH GRADE ORCHESTRA SCHEMATIC



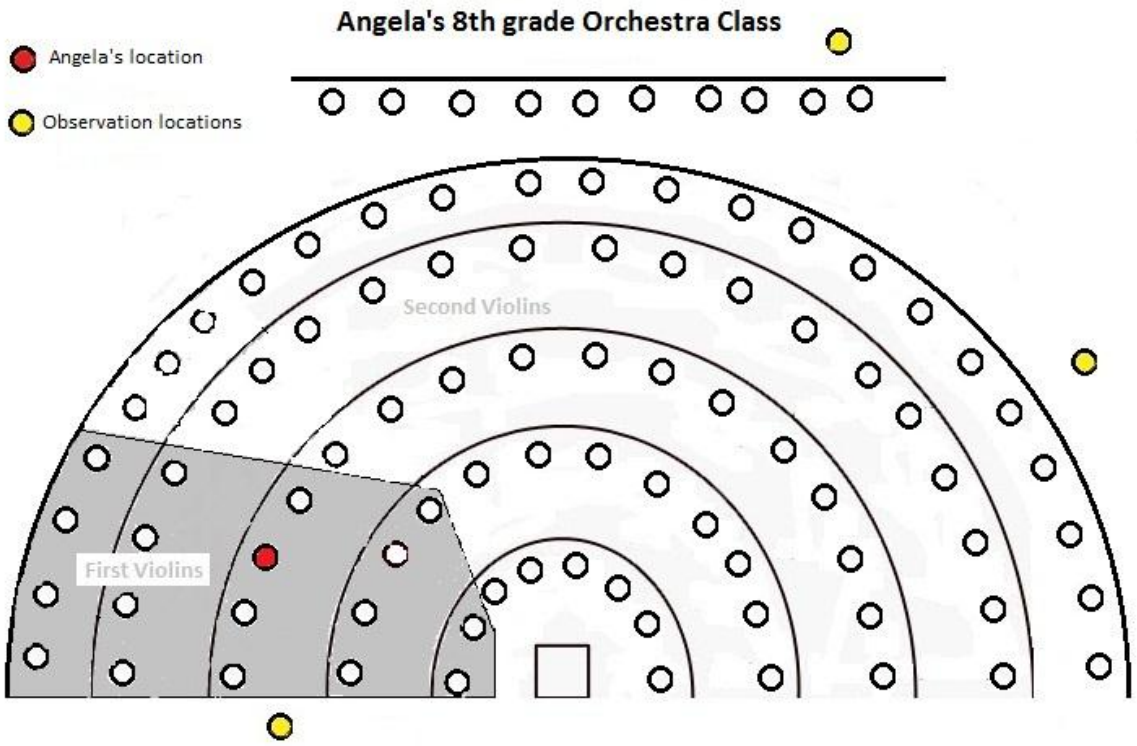
APPENDIX C, cont.

ANGELA'S 7TH GRADE ORCHESTRA SCHEMATIC



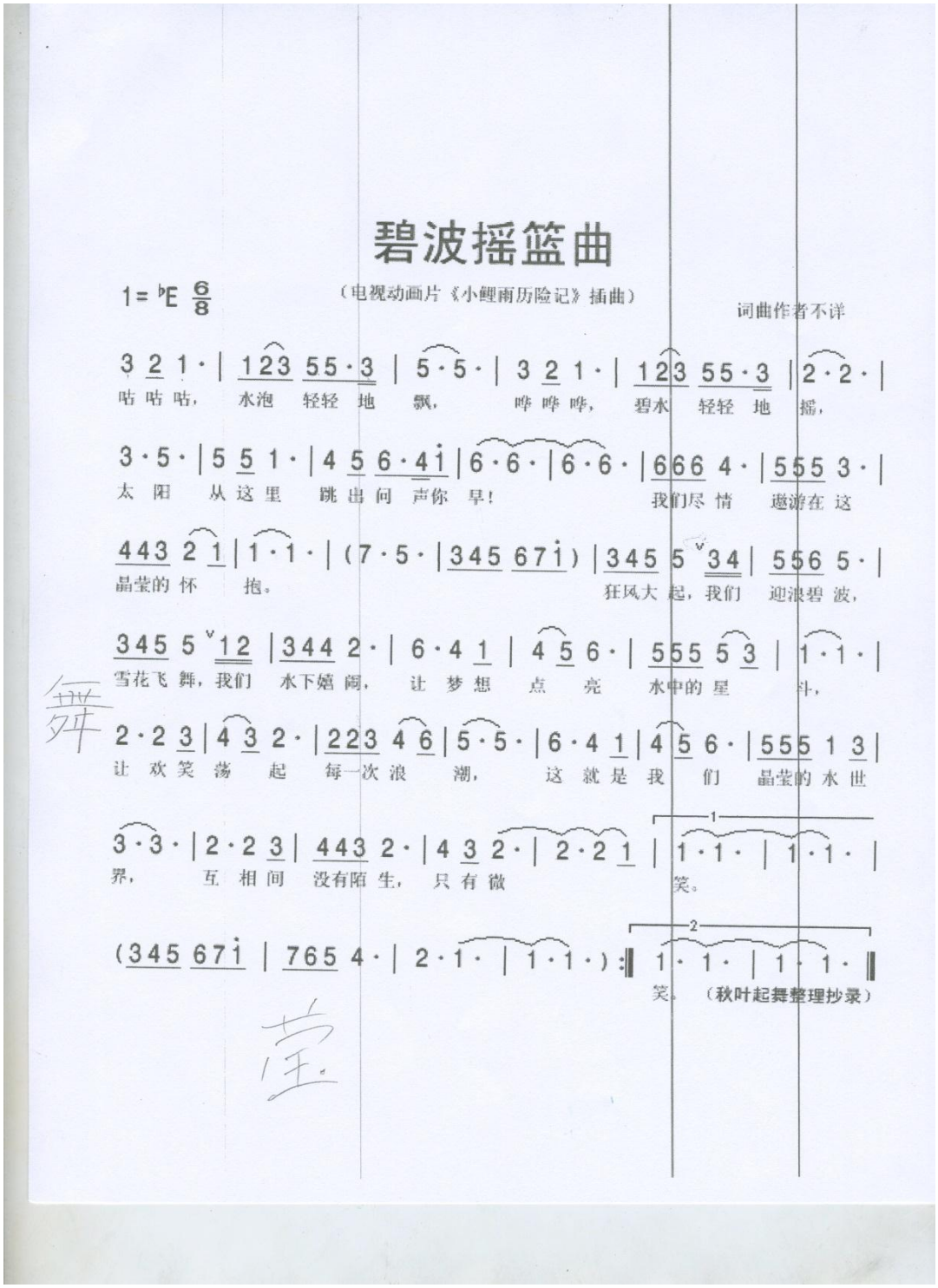
APPENDIX C, cont.

ANGELA'S 8TH GRADE ORCHESTRA SCHEMATIC



APPENDIX C, cont.

EXAMPLE OF CHINESE NOTATION ANGELA FOUND ONLINE



碧波摇篮曲

1= ♭E 6/8

（电视动画片《小鲤雨历险记》插曲）

词曲作者不详

3 2 1· | 123 55·3 | 5·5· | 3 2 1· | 123 55·3 | 2·2· |
咕 咕 咕， 水泡 轻轻 地 飘， 哗 哗 哗， 碧水 轻轻 地 摇，

3·5· | 5 5 1· | 4 5 6·4i | 6·6· | 6·6· | 666 4· | 555 3· |
太 阳 从 这 里 跳 出 问 声 你 早！ 我们尽 情 遨游在 这

443 2 1 | 1·1· | (7·5· | 345 67i) | 345 5 34 | 556 5· |
晶莹的 怀 抱。 狂风大 起，我们 迎浪碧 波，

345 5 12 | 344 2· | 6·4 1 | 4 5 6· | 555 5 3 | 1·1· |
雪花飞 舞，我们 水下嬉 闹， 让 梦 想 点 亮 水中的 星 斗，

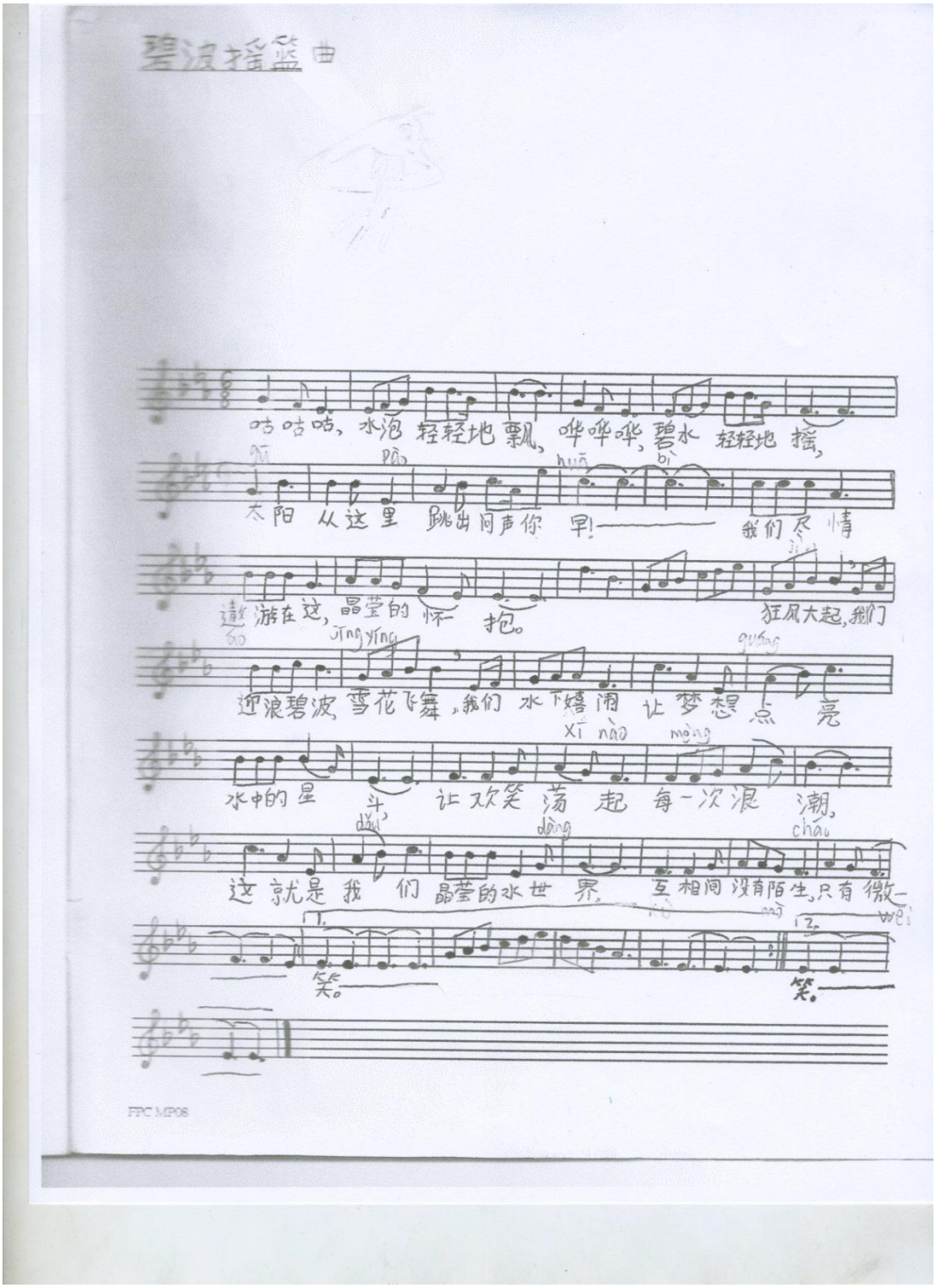
2·2 3 | 4 3 2· | 223 4 6 | 5·5· | 6·4 1 | 4 5 6· | 555 1 3 |
让 欢 笑 荡 起 每一次浪 潮， 这 就 是 我 们 晶莹的 水 世

3·3· | 2·2 3 | 443 2· | 4 3 2· | 2·2 1 | 1·1· | 1·1· |
界， 互 相 间 没有陌 生， 只有微 笑。

(345 67i | 765 4· | 2·1· | 1·1·) :‖ 1·1· | 1·1· ‖
笑。 （秋叶起舞整理抄录）

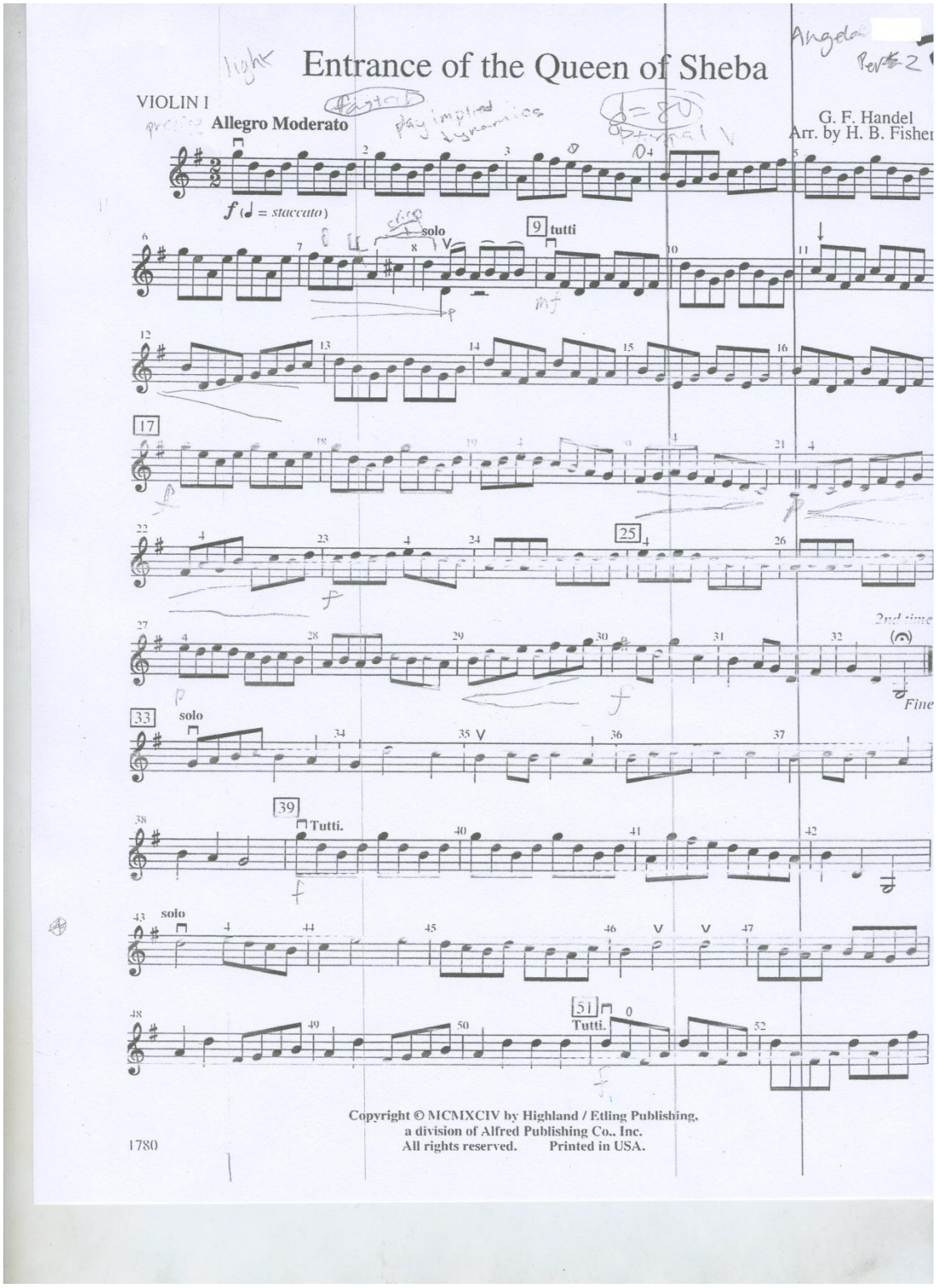
APPENDIX C, cont.

EXAMPLE OF CHINESE NOTATION ANGELA CONVERTED TO WESTERN NOTATION



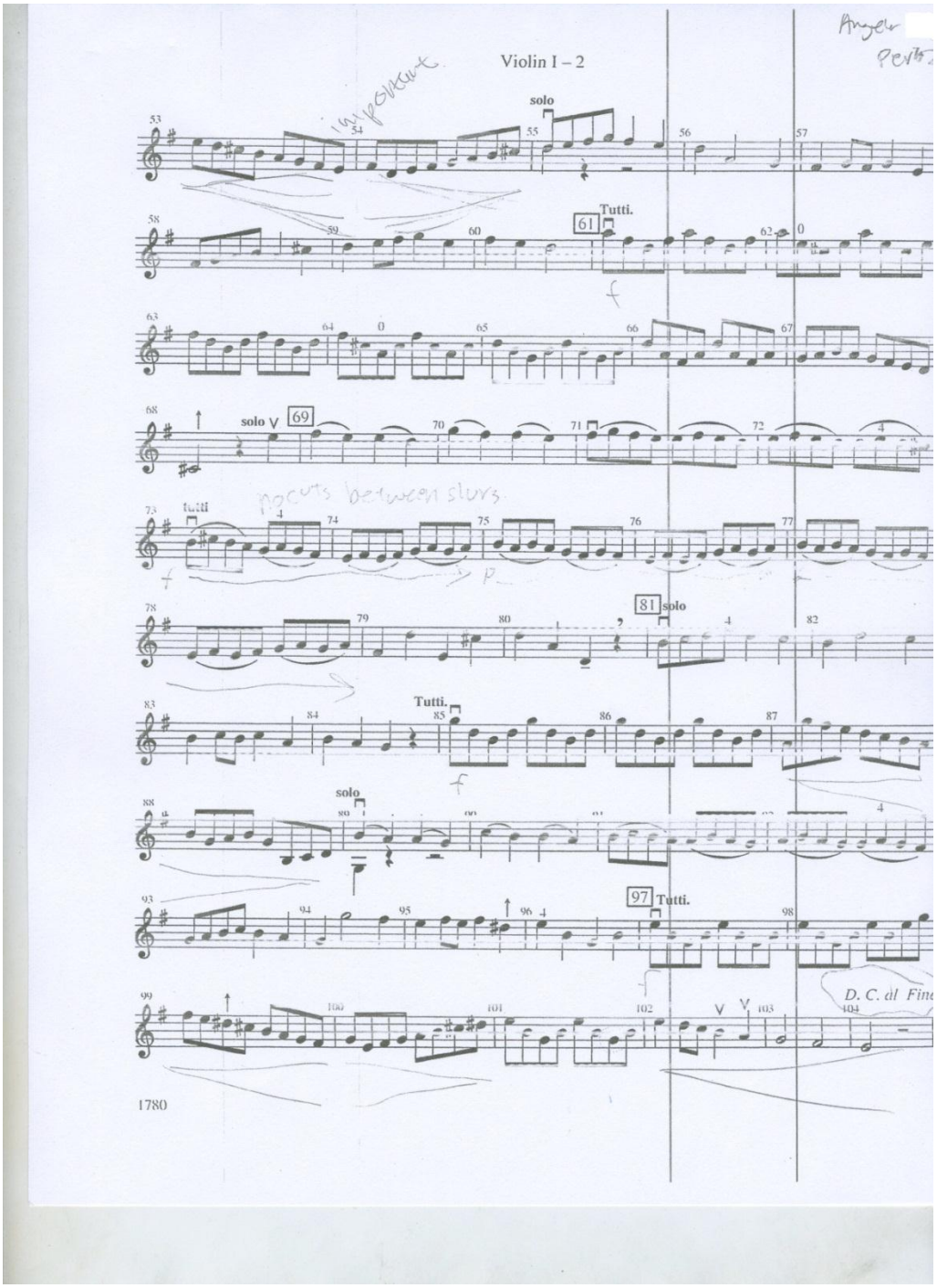
APPENDIX C, cont.

EXAMPLE OF MUSIC ANGELA PLAYS IN HER ORCHESTRA CLASS



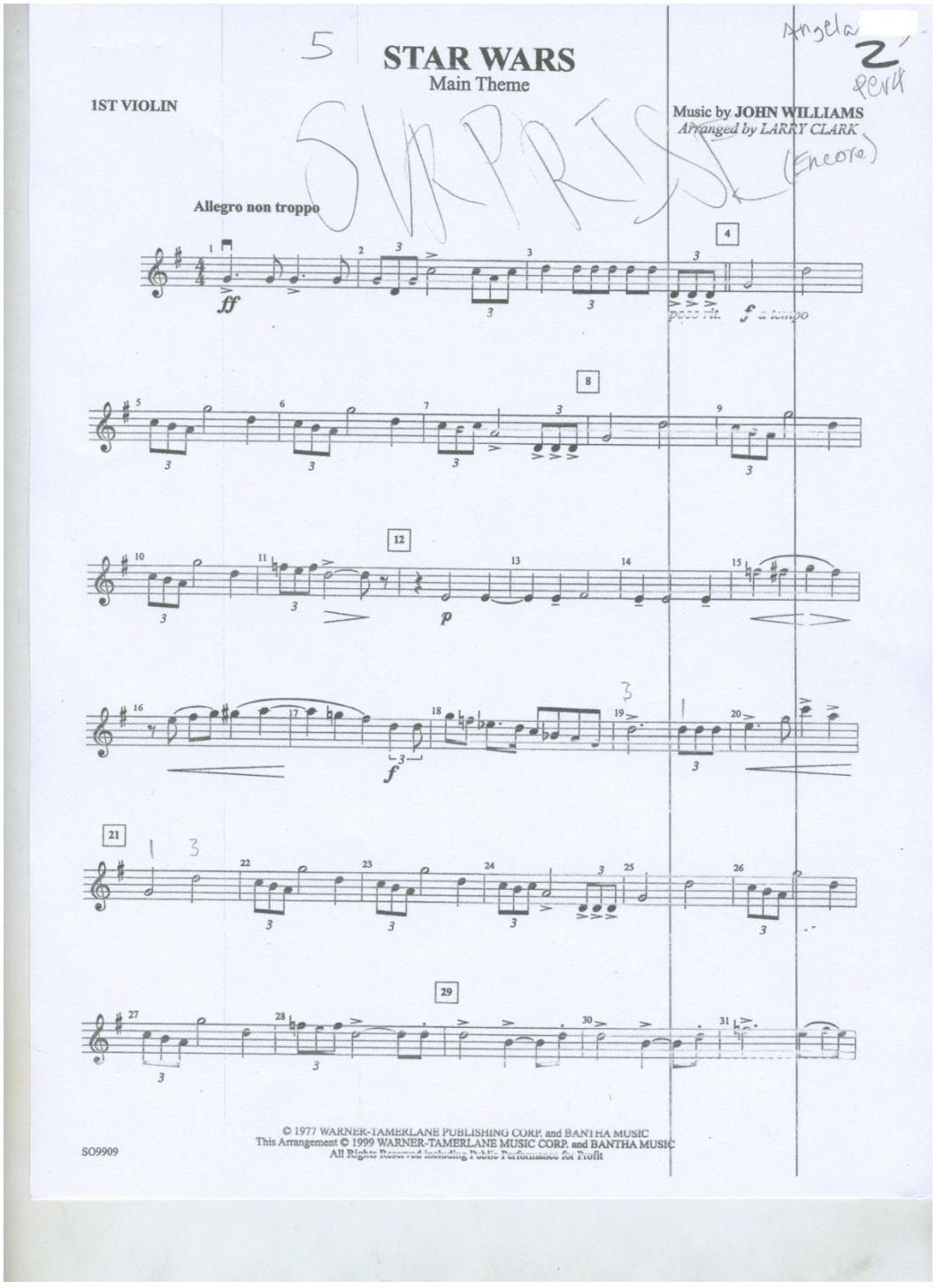
APPENDIX C, cont.

EXAMPLE OF MUSIC ANGELA PLAYS IN HER ORCHESTRA CLASS



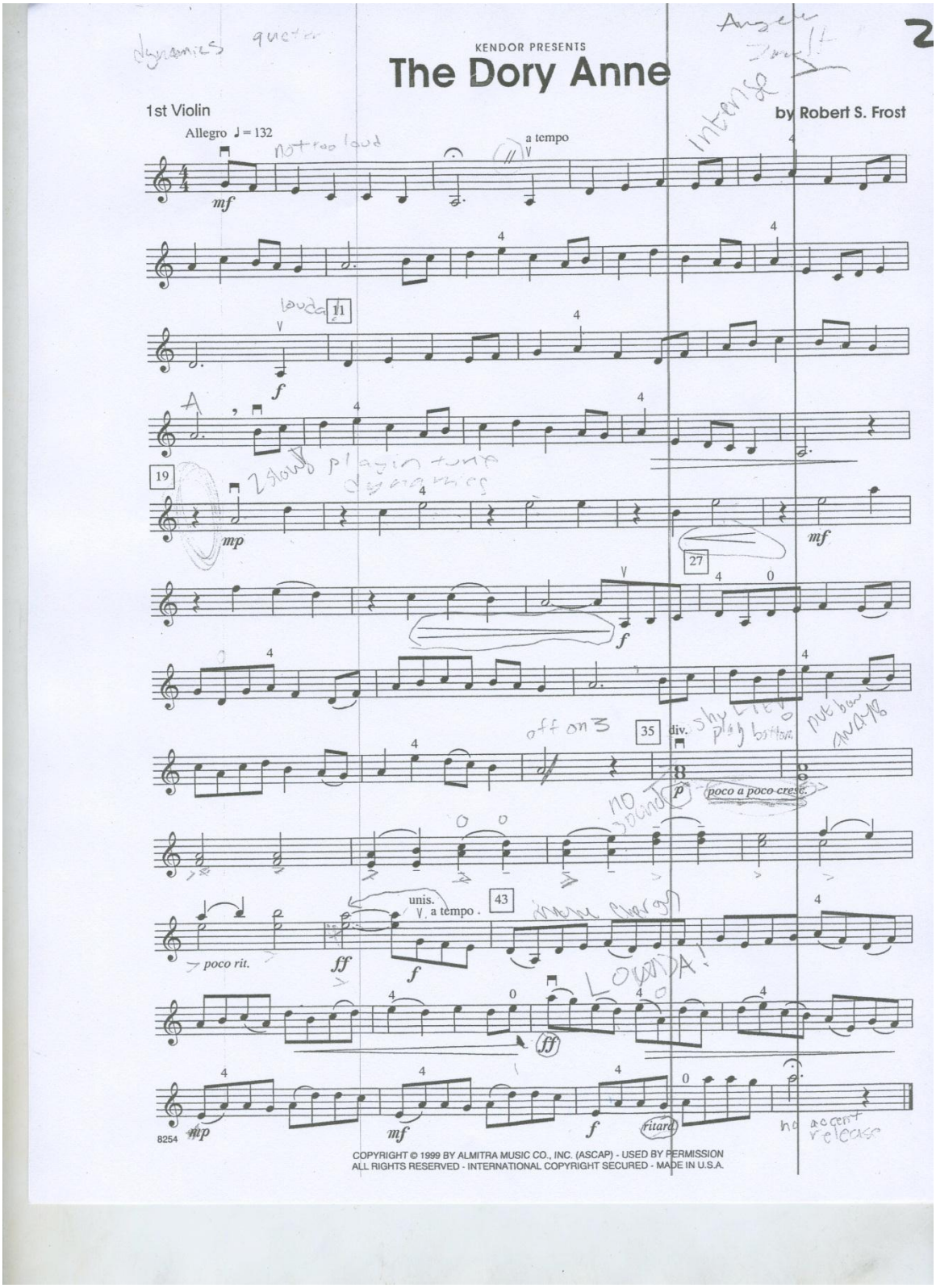
APPENDIX C, cont.

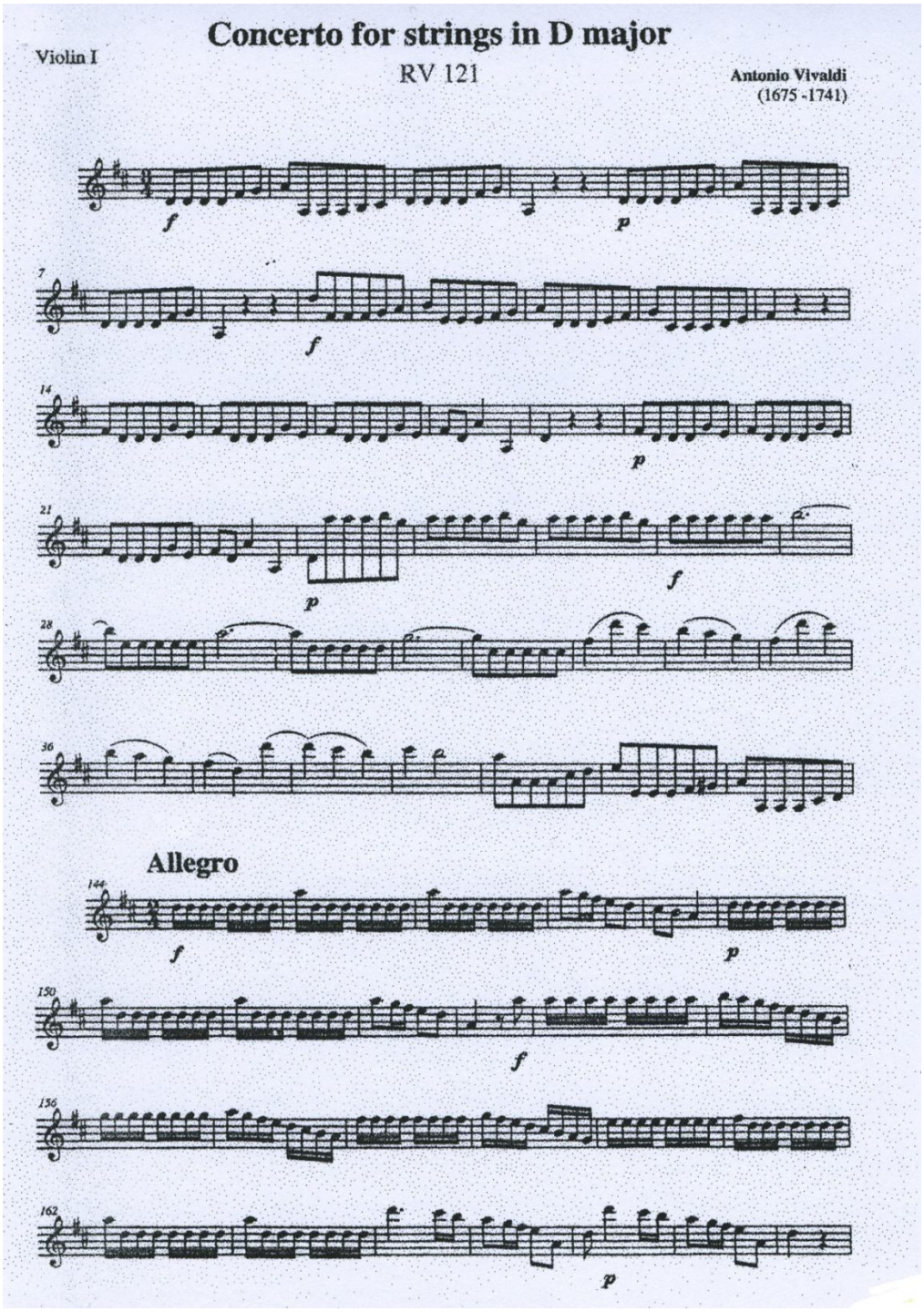
EXAMPLE OF MUSIC ANGELA PLAYS IN HER ORCHESTRA CLASS



APPENDIX C, cont.

EXAMPLE OF MUSIC ANGELA PLAYS IN HER ORCHESTRA CLASS



APPENDIX C, cont.

AUDITION MATERIAL FOR ANGELA'S EXTRACURRICULAR ORCHESTRA